

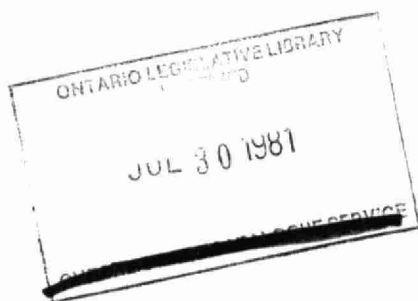
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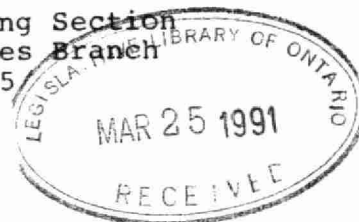
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NANTICOKE WATER CHEMISTRY

1974 REPORT



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September 1975



ABSTRACT

Two types of water quality surveys were done in 1974 in the Nanticoke area of Lake Erie. First, as in previous years, the samples were collected every month and analysed. The results were tested statistically for spatial and temporal variation and also compared with the other years' results. While the difference between the years is significant, not enough data are available to determine the long term trends generally. The exceptions are conductivity and pH where in the mean a slight decrease of the values was observed during the period 1969-1974.

The second type of survey employed an automatic monitoring station which recorded five chemical parameters every 30 minutes. The data served for evaluation of the sudden changes in parameters (stresses) as well as for calculation of the main periodicities and daily changes.

NANTICOKE WATER CHEMISTRY 1974 REPORT

INTRODUCTION

Study of water chemistry in the Nanticoke area of Lake Erie continued in 1974. As in previous years, water samples were collected in the area (nine stations) seven times during the months of April to December 1974. Water samples were analyzed for conductivity, turbidity, pH, various forms of nitrogen and phosphorus, iron, chlorides, sulphate, dissolved silica, dissolved solids and chlorophyll a. The design of the sampling grid and frequency of sampling was similar to previous years so a statistical comparison of water quality and its year to year changes could be determined. The year 1974 was the first operational year of the Ontario Hydro Nanticoke Generating Station, but due to technical difficulties, the station was operational for only part of the year.

In addition to the grab samplings, an automatic monitoring water quality station was installed and run for several days in August and October. Five parameters (temperature, conductivity, DO, pH, ORP) were recorded every 30 minutes during this time. This way any short term fluctuations and time changes in the parameters could be determined.

SURVEY OPERATION

Grab Sampling

Nine stations, as shown in Figure 1, were located by transit and marked with spar buoys. The sampling stations were at the same locations as in the previous years. Samples at two depth levels near the surface and bottom were taken at most of the stations. At stations 518, 1008, and 1040 mid-depth samples only were collected. For chlorophyll a determinations composite depth samples were obtained by mixing bottom and surface samples. Analysis of samples were performed by MOE's main laboratory in Toronto.

In Situ Monitoring

During summer months of 1974 an automatic monitoring station consisting of two NERA model 4 monitors were operated at Nanticoke near Station 1040 (see Figure 1). The instruments recorded every 30 minutes the following parameters: temperature, conductivity, pH, dissolved oxygen, redox potential, and depth. The monitoring systems were placed into the water resistant compartments of the plank-on-edge (Braincon Corp.) surface buoy with the sensors lowered to an appropriate depth. An attempt was made to record simultaneously at two depth levels, but only a short common record in August was obtained. The review of the operation of the NERA monitors is given in Table 8.

ANALYSIS OF 1974 DATA

Results of the analysis of the samples collected are summarized in Tables 1 to 6. Means and standard deviations classified by days are given in Tables 1 and 2. Similar results compared by the stations are shown in Tables 3 and 4. Indices of variation defined as $100 \times \text{standard deviations}/\text{mean}$ are given in Tables 5 and 6.

The significance and variation due to the dates and stations was tested by a two-way analysis of variance technique with the results given in Table 7. As can be seen, there is in most cases, significant difference (at 0.05 probability) between dates for individual parameters (15 out of 18) while only four of the parameters show significant difference between different stations. There is no significant difference between nutrients and most of the chemical parameters at different stations and also some of the nutrients such as dissolved phosphorus, total organic nitrogen and total kjeldahl nitrogen are not significantly different on different dates.

As discussed, monitoring at 30 minute intervals was done by the NERA environmental monitor. Operational periods for which good data were obtained are listed in Table 8. Also on October 10, vertical profiling was done using the monitor at Stations 1040 and 810. No difference was found between the parameters measured at the different depth levels as no stratification existed on that day. From the data collected by NERA monitor, daily mean values and their standard deviations were calculated and are given in Table 9. In August 1974, two instruments were operated at two levels in a plan to record the chemistry in and under the thermal plume of the Ontario Hydro generating station. Operating schedule of the Ontario Hydro station is given in Table 10. Unfortunately, Ontario Hydro was shut down during that period and also the obtained records are very short. As can be seen from Table 9, there is some difference in the chemistry parameters at the two levels measured at the same time while the difference between the days at the same level is rather small.

The parameters were tested by the Kolomorgov-Smirnov distribution test (IBM, 1968) for the probability of being normally, exponentially or log-normally distributed. The results are presented in Table 11 and as can be seen none of the tested distributions prevailed throughout the record. This is in agreement with results previously reported (Palmer and Izatt, 1970). This finding has to be taken with caution as the records tested are relatively short and cover only a short part of the year. Nevertheless, the results of all statistical treatments based on normal distribution also have to be taken with caution.

To evaluate sudden changes in the recorded chemical and physical parameters, the maximum values of the time changes (gradient) over one and four hours were calculated for the available records and are shown in Table 12. Both the increases and the decreases are listed. In August the changes were generally larger in the top layer than in the lower layer, while in October the difference between the various levels was minimal. Also the changes over four hours, i.e. the mean change occurring over a four hour period of time is smaller than the change in a one hour period. Time gradients are an important measure of sudden changes in physical and chemical properties (stresses) and more investigation should be done on their influence on fauna and flora. The data obtained by the NERA monitor were subjected to a time series analysis to find the significant periodicities. The data sets were first filtered to remove white noise and also the long-period trends. The results of the analysis are shown in Table 13 where the significant spectral periods are listed for five parameters for each record obtained in 1974. For most of the parameters, there are few periodicities, the exception is conductivity recorded from August 7-9. There appears no diurnal periodicity of the parameters due possibly to the insufficient length of record and also the periodicities cannot be explained by lake free oscillations (theoretical values of Rockwell (1966)).

CHANGES IN WATER CHEMISTRY DURING THE YEARS 1969-1974

Some of the chemical parameters were monitored several times a year from 1969 to 1974 and the possible change in their values during those years should be examined. The results of two-way analysis of variance for conductivity, pH, turbidity, total P and total N are given in Table 14. Apparently, for the years 1970-74, the between the years change are significant while the difference between the stations is significant only for turbidity. In Figure 2, the mean values of conductivity and their 95 percent confidence limits are depicted for individual days when the samples were collected, from 1969 to 1974. Considerable variation between the individual surveys is readily apparent. Usually conductivity reaches its minimum in late summer increasing again before winter. Mean slope for all points shown in Figure 1 was calculated by the least square method and is shown as a full line. The broken lines show the 95 percent confidence limit of the slope. As can be seen, there is positively a decline of conductivity between these years with a mean value of $3.0 \mu\text{mhos/cm/year}$. Straight line change is only an approximation. Actually, the properties are changing periodically and while the mean change of the property over the years can be calculated it does not mean that the same change occurs every month. Instead, the

periodic changes take place as can be seen on Figure 2. To determine the actual periodicities more and longer period data are required.

Similarly, four other parameters, pH, turbidity, total P and total N were analyzed with results shown in Figures 3 to 6 and Table 15. From those, only pH has been decreasing within a 95 percent probability level. Others may be decreasing as well as increasing within the same probability level and longer records are required to determine the changes.

CONCLUSIONS

There is a significant year to year difference in chemistry data in Nanticoke. For conductivity and pH there was a mean yearly decrease of the value from 1969 to 1974 of 3.0 $\mu\text{mhos/cm}$ and 0.07 SU while for turbidity, total P and total N the trend cannot be determined within a 95 percent confidence level. The lake region covered by the surveys from 1969 to 1974 was, with the exception of turbidity, found to have no significant differences in water quality among the stations. On the other hand, the difference between the years and seasonal variations are significant.

REFERENCES

IBM (1970) System/360 Scientific Subroutine Package (360A-CM-03X) Version III, H20-0166-5. International Business Machines Corp., White Plains, N.Y. 10604.

Palmer, M.D., Izatt, J.B. (1970). Determination of Some Chemical and Physical Relationship from Recording Meters in Lakes. Water Research 4, 773.

Rockwell (1966). Theoretical Free Oscillation of the Great Lakes. Univ. of Chicago, Dept. of Geophysical Sci., Technical Report 20.

TABLE 1: Summary of Results, Mean Value per Date, 1974, Nanticoke Water Chemistry

| DATE | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N-mg/l | Tot Org N-mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₄ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll A - mg/l |
|--------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|-------------------------|
| Apr 24 | A | 5.2 | 313 | 2.9 | 7.4 | 0.013 | 0.005 | 0.492 | 0.27 | 0.266 | 0.206 | 0.003 | 0.018 | 0.18 | 22.9 | - | - | 204 | 0.9 |
| | B | 4.9 | 312 | 2.1 | 7.6 | 0.013 | 0.005 | 0.506 | 0.29 | 0.266 | 0.212 | 0.006 | 0.022 | 0.12 | 22.8 | - | - | 203 | |
| May 7 | A | 6.2 | - | 3.4 | 7.8 | 0.017 | 0.016 | 0.636 | 0.40 | 0.382 | 0.225 | 0.003 | 0.015 | 0.16 | 23.4 | - | - | 228 | 0.9 |
| | B | 6.5 | - | 5.0 | 7.9 | 0.020 | 0.009 | 0.545 | 0.31 | 0.300 | 0.220 | 0.003 | 0.010 | 0.35 | 23.3 | - | - | 228 | |
| May 22 | A | 13.1 | 309 | 7.8 | 8.1 | 0.030 | 0.012 | 0.564 | 0.32 | 0.275 | 0.227 | 0.007 | 0.046 | 0.37 | 22.8 | - | - | 201 | 1.6 |
| | B | 10.6 | 310 | 8.6 | 8.0 | 0.027 | 0.015 | 0.530 | 0.28 | 0.256 | 0.246 | 0.007 | 0.021 | 0.39 | 22.9 | - | - | 202 | |
| Jun 18 | A | 13.0 | 303 | 4.6 | 7.5 | 0.019 | 0.005 | 0.462 | 0.30 | 0.286 | 0.159 | 0.003 | 0.014 | 0.22 | 20.0 | 26.0 | 0.88 | 202 | 1.8 |
| | B | 12.0 | 310 | 5.2 | 7.7 | 0.022 | 0.005 | 0.448 | 0.29 | 0.273 | 0.159 | 0.003 | 0.013 | 0.27 | 20.0 | 26.0 | 0.91 | 202 | |
| Jul 5 | A | 15.1 | 310 | 3.8 | 8.0 | 0.012 | 0.005 | 0.412 | 0.25 | 0.216 | 0.155 | 0.005 | 0.036 | 0.25 | 19.3 | 25.0 | 0.22 | 202 | 0.9 |
| | B | 12.2 | 310 | 2.6 | 8.1 | 0.014 | 0.006 | 0.455 | 0.26 | 0.214 | 0.191 | 0.005 | 0.045 | 0.21 | 19.2 | 25.4 | 0.23 | 202 | |
| Jul 30 | A | 20.5 | 311 | 1.7 | 8.3 | 0.018 | 0.006 | 0.480 | 0.33 | 0.320 | 0.147 | 0.005 | 0.008 | 0.13 | 23.2 | 27.2 | 0.43 | 202 | 1.1 |
| | B | 17.8 | 313 | 1.6 | 8.2 | 0.022 | 0.008 | 0.509 | 0.33 | 0.336 | 0.176 | 0.007 | 0.014 | 0.13 | 23.4 | 27.4 | 0.58 | 203 | |
| Aug 27 | A | 22.6 | 305 | 2.1 | 7.7 | - | - | - | - | - | - | - | - | 0.14 | 22.5 | 21.8 | - | - | 0.5 |
| | B | 22.0 | 306 | 0.9 | 7.8 | - | - | - | - | - | - | - | - | 0.13 | 22.5 | 22.2 | - | - | |
| Sep 24 | A | 15.3 | 305 | 1.1 | 8.2 | 0.017 | 0.007 | 0.319 | 0.30 | 0.288 | 0.011 | 0.006 | 0.010 | - | 20.4 | - | - | - | 1.5 |
| | B | 15.2 | 305 | 1.4 | 8.2 | 0.015 | 0.004 | 0.312 | 0.29 | 0.262 | 0.012 | 0.006 | 0.014 | - | 20.7 | - | - | - | |
| Oct 24 | A | 11.0 | 308 | 3.1 | 8.2 | 0.019 | 0.004 | 0.290 | 0.28 | 0.263 | 0.009 | 0.003 | 0.015 | 0.10 | 21.4 | - | 0.12 | - | 1.3 |
| | B | 10.1 | 308 | 3.9 | 8.2 | 0.019 | 0.004 | 0.306 | 0.29 | 0.276 | 0.009 | 0.002 | 0.019 | 0.14 | 21.4 | - | 0.12 | - | |
| Dec 4 | A | 4.8 | 304 | 5.8 | 8.2 | 0.027 | 0.007 | 0.331 | 0.32 | 0.298 | 0.014 | 0.002 | 0.015 | 0.24 | 22.8 | - | 0.34 | 198 | 2.9 |
| | B | 4.4 | 304 | 5.8 | 8.3 | 0.035 | 0.008 | 0.354 | 0.34 | 0.321 | 0.014 | 0.002 | 0.017 | 0.31 | 22.6 | - | 0.23 | 198 | |

A - Surface Samples
B - Bottom Samples
* - Depth-composite Samples

TABLE 2: Summary of Results, Standard Deviation per Date, 1974, Nanticoke Water Chemistry

| DATE | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N-mg/l | Tot Org N-mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₃ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll* A-mg/l |
|--------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|------------------------|
| Apr 24 | A | 1.35 | 2.50 | 1.90 | 0.609 | 0.00631 | 0.00261 | 0.09073 | 0.0776 | 0.0694 | 0.0330 | 0.00075 | 0.00462 | 0.1203 | 0.125 | - | - | 1.54 | 0.28 |
| | B | 1.46 | 2.74 | 0.62 | 0.430 | 0.00371 | 0.00313 | 0.1029 | 0.0914 | 0.0898 | 0.0295 | 0.00477 | 0.00836 | 0.0549 | 0.122 | - | - | 1.50 | |
| May 7 | A | 1.89 | - | 0.59 | 0.264 | 0.00633 | 0.03490 | 0.3059 | 0.3130 | 0.3108 | 0.0291 | 0.00075 | 0.00547 | 0.0602 | 0.294 | - | - | 1.22 | 0.34 |
| | B | 1.71 | - | 2.45 | 0.207 | 0.00691 | 0.00508 | 0.0901 | 0.08485 | 0.0848 | 0.0200 | 0.00053 | 0.00 | 0.1880 | 0.231 | - | - | 0.0 | |
| May 22 | A | 1.00 | 2.00 | 3.70 | 0.0408 | 0.01074 | 0.006947 | 0.1113 | 0.0644 | 0.0432 | 0.0393 | 0.00167 | 0.02191 | 0.2478 | 0.983 | - | - | 1.60 | 0.43 |
| | B | 0.85 | 1.51 | 4.58 | 0.153 | 0.01224 | 0.01386 | 0.0784 | 0.0292 | 0.0282 | 0.0496 | 0.00219 | 0.00690 | 0.2866 | 1.215 | - | - | 0.81 | |
| Jun 18 | A | 0.35 | 4.30 | 2.82 | 0.396 | 0.00772 | 0.00134 | 0.0719 | 0.0524 | 0.0491 | 0.0204 | 0.0 | 0.00483 | 0.1806 | 0.0 | 0.0 | 0.532 | - | 0.44 |
| | B | 1.99 | 2.35 | 3.21 | 0.397 | 0.00786 | 0.00136 | 0.0556 | 0.0393 | 0.0332 | 0.0183 | 0.0 | 0.00683 | 0.2015 | 0.015 | 0.0 | 0.336 | - | |
| Jul 5 | A | 0.79 | 0.00 | 2.92 | 0.187 | 0.00307 | 0.00261 | 0.0399 | 0.0371 | 0.0321 | 0.0688 | 0.00116 | 0.00861 | 0.2011 | 0.163 | 0.816 | 0.098 | 0.0 | 0.18 |
| | B | 1.78 | 0.00 | 0.91 | 0.107 | 0.00339 | 0.00149 | 0.0293 | 0.0167 | 0.0174 | 0.0195 | 0.00141 | 0.00764 | 0.0894 | 0.213 | 0.534 | 0.095 | 1.13 | |
| Jul 30 | A | 0.30 | 1.34 | 1.97 | 0.083 | 0.01089 | 0.00558 | 0.1088 | 0.1003 | 0.0969 | 0.0136 | 0.00040 | 0.00408 | 0.1420 | 0.200 | 0.447 | 0.156 | 0.50 | 0.64 |
| | B | 2.31 | 2.48 | 0.58 | 0.097 | 0.00849 | 0.00443 | 0.0710 | 0.0467 | 0.0980 | 0.0315 | 0.00350 | 0.00367 | 0.0826 | 0.663 | 0.534 | 0.172 | 1.83 | |
| Aug 27 | A | 0.23 | 1.03 | 2.97 | 0.258 | - | - | - | - | - | - | - | - | 0.1114 | 0.0 | 0.930 | - | - | 0.166 |
| | B | 1.03 | 2.33 | 0.70 | 0.183 | - | - | - | - | - | - | - | - | 0.0752 | 0.0 | 0.983 | - | - | |
| Sep 24 | A | 0.37 | 1.03 | 0.19 | 0.075 | 0.00389 | 0.00362 | 0.0291 | 0.0292 | 0.0292 | 0.00109 | 0.00516 | 0.0 | - | 0.376 | - | - | - | 0.28 |
| | B | 0.33 | 1.63 | 0.67 | 0.151 | 0.00325 | 0.00121 | 0.0471 | 0.0472 | 0.0462 | 0.00095 | 0.00048 | 0.00787 | - | 0.258 | - | - | - | |
| Oct 24 | A | 0.59 | 1.26 | 1.01 | 0.040 | 0.00316 | 0.00063 | 0.0471 | 0.0470 | 0.0516 | 0.00178 | 0.00103 | 0.00548 | 0.0447 | 0.204 | - | 0.040 | - | 0.46 |
| | B | 0.19 | 1.38 | 1.41 | 0.048 | 0.00151 | 0.00057 | 0.0300 | 0.0293 | 0.0293 | 0.00149 | 0.00048 | 0.00378 | 0.0476 | 0.244 | - | 0.039 | - | |
| Dec 4 | A | 1.19 | 1.50 | 2.01 | 0.216 | 0.00447 | 0.00183 | 0.0459 | 0.0459 | 0.0454 | 0.00196 | 0.00516 | 0.00274 | 0.0900 | 0.408 | - | 0.247 | 0.0 | 0.39 |
| | B | 1.37 | 1.41 | 2.61 | 0.0983 | 0.02358 | 0.00595 | 0.0304 | 0.0302 | 0.0307 | 0.00149 | 0.00037 | 0.00267 | 0.1770 | 0.534 | - | 0.131 | 0.0 | |

A - Surface Samples
 B - Bottom Samples
 * - Depth-composite Samples

TABLE 3: Summary of Results, Mean Value per Station, 1974, Nanticoke Water Chemistry

| STATION | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N-mg/l | Tot Org N-mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₃ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll* A - mg/l |
|---------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|--------------------------|
| 112 | A | 12.6 | 307 | 2.4 | 8.1 | 0.019 | 0.007 | 0.410 | 0.27 | 0.264 | 0.126 | 0.004 | 0.022 | 0.11 | 20.0 | 24.3 | 0.19 | 206 | 1.1 |
| | B | 11.3 | 309 | 3.0 | 8.2 | 0.018 | 0.006 | 0.416 | 0.30 | 0.273 | 0.133 | 0.006 | 0.023 | 0.16 | 21.8 | 26.0 | 0.34 | 202 | |
| 501 | A | 12.2 | 307 | 1.9 | 8.0 | 0.014 | 0.005 | 0.374 | 0.25 | 0.232 | 0.161 | 0.004 | 0.019 | 0.06 | 22.3 | 24.8 | 0.25 | 205 | 1.2 |
| | B | 9.9 | 307 | 1.9 | 8.0 | 0.026 | 0.009 | 0.400 | 0.27 | 0.251 | 0.126 | 0.004 | 0.024 | 0.11 | 21.9 | 24.8 | 0.45 | 205 | |
| 518 | C | 12.9 | 308 | 4.7 | 8.1 | 0.023 | 0.008 | 0.443 | 0.29 | 0.268 | 0.152 | 0.004 | 0.019 | 0.19 | 21.7 | 26.0 | 0.25 | 205 | 1.5 |
| 648 | A | 12.7 | 308 | 3.0 | 8.0 | 0.017 | 0.006 | 0.410 | 0.27 | 0.253 | 0.133 | 0.004 | 0.019 | 0.18 | 21.8 | 24.7 | 0.51 | 207 | 1.5 |
| | B | 12.4 | 309 | 3.3 | 8.1 | 0.018 | 0.005 | 0.420 | 0.27 | 0.255 | 0.144 | 0.005 | 0.024 | 0.12 | 21.8 | 25.8 | 0.42 | 207 | |
| 810 | A | 13.5 | 308 | 4.1 | 7.9 | 0.019 | 0.007 | 0.431 | 0.29 | 0.276 | 0.133 | 0.004 | 0.018 | 0.23 | 21.7 | 26.0 | 0.44 | 206 | 1.1 |
| | B | 12.9 | 309 | 3.5 | 7.9 | 0.019 | 0.007 | 0.451 | 0.31 | 0.291 | 0.140 | 0.004 | 0.016 | 0.30 | 22.0 | 25.6 | 0.27 | 208 | |
| 994 | A | 12.7 | 307 | 4.9 | 8.0 | 0.034 | 0.013 | 0.527 | 0.39 | 0.330 | 0.132 | 0.005 | 0.028 | 0.33 | 22.0 | 24.9 | 0.46 | 206 | 1.5 |
| | B | 11.7 | 310 | 4.6 | 8.0 | 0.022 | 0.006 | 0.458 | 0.32 | 0.301 | 0.131 | 0.004 | 0.022 | 0.26 | 22.0 | 24.9 | 0.45 | 206 | |
| 1008 | C | 10.9 | 310 | 4.3 | 7.9 | 0.025 | 0.008 | 0.416 | 0.28 | 0.262 | 0.131 | 0.004 | 0.019 | 0.28 | 21.9 | 24.8 | 0.46 | 206 | 1.3 |
| 1016 | A | 11.9 | 307 | 4.5 | 7.7 | 0.022 | 0.008 | 0.472 | 0.35 | 0.329 | 0.118 | 0.004 | 0.021 | 0.26 | 21.9 | 24.9 | 0.41 | 206 | 1.3 |
| | B | 10.6 | 310 | 3.8 | 7.8 | 0.019 | 0.005 | 0.455 | 0.31 | 0.293 | 0.135 | 0.005 | 0.021 | 0.23 | 21.8 | 24.9 | 0.40 | 206 | |
| 1040 | A | 6.7 | 315 | 6.8 | 6.5 | 0.021 | 0.004 | 0.634 | 0.38 | 0.360 | 0.250 | 0.004 | 0.020 | 0.18 | 23.0 | - | - | 205 | 1.4 |
| | B | 13.1 | 309 | 6.4 | 8.0 | 0.028 | 0.010 | 0.439 | 0.30 | 0.278 | 0.138 | 0.005 | 0.019 | 0.42 | 21.6 | 25.9 | 0.42 | 206 | |

A - Surface Samples
 B - Bottom Samples
 C - Mid-Depth Samples
 * - Depth-composite Samples

TABLE 4: Summary of Results, Standard Deviation per Station, 1974, Nanticoke Water Chemistry

| STATION | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N - mg/l | Tot Org N - mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₃ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll* A - mg/l |
|---------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|-----------------------|---------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|--------------------------|
| 112 | A | 6.68 | 3.15 | 1.62 | 0.181 | 0.00652 | 0.00277 | 0.0992 | 0.0459 | 0.0411 | 0.1057 | 0.00158 | 0.01308 | 0.0688 | 1.478 | 1.055 | 0.143 | 11.06 | 0.819 |
| | B | 3.69 | 4.63 | 1.70 | 0.089 | 0.00446 | 0.00137 | 0.1405 | 0.0516 | 0.0598 | 0.1136 | 0.00408 | 0.01506 | 0.0572 | 1.679 | 1.414 | 0.205 | 2.994 | |
| 501 | A | 6.67 | 3.84 | 1.15 | 0.31 | 0.00464 | 0.00142 | 0.0701 | 0.0327 | 0.0374 | 0.0477 | 0.00158 | 0.01333 | 0.0527 | 1.877 | 2.630 | 0.093 | 11.22 | 0.73 |
| | B | 5.38 | 3.13 | 1.19 | 0.22 | 0.02609 | 0.01253 | 0.0843 | 0.0364 | 0.0429 | 0.0924 | 0.00145 | 0.01616 | 0.095 | 1.626 | 2.630 | 0.374 | 11.22 | |
| 518 | C | 6.45 | 2.98 | 3.69 | 0.152 | 0.00967 | 0.00367 | 0.1368 | 0.0543 | 0.0505 | 0.1190 | 0.00212 | 0.01387 | 0.1999 | 1.652 | 2.160 | 0.165 | 9.46 | 0.68 |
| 648 | A | 6.13 | 3.81 | 2.88 | 0.28 | 0.00703 | 0.00339 | 0.1158 | 0.0443 | 0.0394 | 0.1014 | 0.00220 | 0.01341 | 0.1716 | 1.431 | 1.528 | 0.566 | 12.00 | 0.83 |
| | B | 5.79 | 4.21 | 3.67 | 0.21 | 0.00551 | 0.00200 | 0.1034 | 0.0469 | 0.0469 | 0.1066 | 0.00316 | 0.01446 | 0.0680 | 1.475 | 2.062 | 0.521 | 10.76 | |
| 810 | A | 6.03 | 3.42 | 3.24 | 0.49 | 0.00911 | 0.00544 | 0.0853 | 0.0510 | 0.0509 | 0.0957 | 0.00227 | 0.0154 | 0.1564 | 1.507 | 2.160 | 0.498 | 12.30 | 0.54 |
| | B | 5.95 | 3.54 | 2.89 | 0.403 | 0.00551 | 0.0035 | 0.0828 | 0.0370 | 0.0407 | 0.1038 | 0.00185 | 0.01024 | 0.2188 | 1.749 | 2.287 | 0.192 | 13.03 | |
| 994 | A | 6.10 | 4.32 | 3.03 | 0.306 | 0.03654 | 0.02731 | 0.2930 | 0.0245 | 0.2713 | 0.0944 | 0.00224 | 0.01837 | 0.1791 | 1.565 | 2.394 | 0.427 | 10.86 | 0.89 |
| | B | 5.61 | 4.06 | 3.03 | 0.334 | 0.01045 | 0.00266 | 0.1154 | 0.0685 | 0.0760 | 0.0937 | 0.00198 | 0.01225 | 0.1533 | 1.513 | 2.394 | 0.322 | | |
| 1008 | C | 5.27 | 3.12 | 2.74 | 0.346 | 0.00917 | 0.00574 | 0.0853 | 0.0695 | 0.0652 | 0.0931 | 0.00187 | 0.01210 | 0.1565 | 1.294 | 2.630 | 0.433 | 10.94 | 0.72 |
| 1016 | A | 5.03 | 4.13 | 3.00 | 0.455 | 0.01026 | 0.00655 | 0.1511 | 0.0741 | 0.0774 | 0.1017 | 0.00200 | 0.01310 | 0.1617 | 1.463 | 2.394 | 0.274 | 2.54 | 0.81 |
| | B | 4.21 | 1.87 | 2.42 | 0.386 | 0.00447 | 0.00223 | 0.1160 | 0.0563 | 0.0572 | 0.0949 | 0.00381 | 0.01269 | 0.1090 | 1.308 | 2.394 | 0.424 | 11.00 | |
| 1040 | A | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.70 |
| | B | 6.40 | 3.54 | 4.64 | 0.318 | 0.01169 | 0.00680 | 0.1215 | 0.0468 | 0.0478 | 0.1129 | 0.00302 | 0.01275 | 0.2368 | 1.623 | 1.843 | 0.325 | 12.11 | |

A - Surface Samples
 B - Bottom Samples
 C - Mid-Depth Samples
 * - Depth-composite Samples

TABLE 5: Index of Variation per Date 1974, Nanticoke Water Chemistry

| DATE | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N-mg/l | Tot Org N-mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₃ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll* A - mg/l |
|--------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|--------------------------|
| Apr 24 | A | 26.1 | 0.8 | 62.1 | 8.2 | 48.5 | 52.2 | 18.4 | 28.8 | 26.1 | 16.1 | 25.2 | 25.7 | 66.8 | 0.6 | - | - | 0.8 | 32.1 |
| | B | 29.9 | 0.9 | 29.5 | 5.7 | 28.5 | 62.6 | 20.3 | 31.5 | 33.8 | 13.9 | 79.6 | 38.0 | 45.8 | 0.5 | - | - | 0.7 | |
| May 7 | A | 30.6 | - | 17.4 | 3.4 | 37.2 | 218.1 | 48.1 | 78.3 | 81.3 | 12.9 | 25.1 | 36.5 | 37.7 | 1.3 | - | - | 0.5 | 38.6 |
| | B | 26.4 | - | 49.0 | 2.6 | 34.6 | 56.5 | 16.5 | 27.4 | 28.3 | 9.1 | 17.2 | 0.0 | 53.7 | 1.0 | - | - | 0.0 | |
| May 22 | A | 7.6 | 0.6 | 47.4 | 0.5 | 35.8 | 57.9 | 19.7 | 20.1 | 15.7 | 17.3 | 23.9 | 52.3 | 67.0 | 4.3 | - | - | 0.8 | 27.0 |
| | B | 8.1 | 0.5 | 53.3 | 1.9 | 45.3 | 92.5 | 14.8 | 10.5 | 11.0 | 20.1 | 31.3 | 32.9 | 73.5 | 5.3 | - | - | 0.4 | |
| Jun 18 | A | 2.7 | 1.4 | 61.3 | 5.2 | 40.6 | 26.8 | 15.6 | 17.5 | 17.2 | 12.9 | 0.0 | 34.5 | 82.1 | 0.0 | 0.0 | 60.5 | - | 24.9 |
| | B | 16.6 | 0.8 | 61.7 | 5.2 | 35.8 | 27.3 | 12.4 | 13.6 | 12.2 | 11.5 | 0.0 | 52.5 | 74.6 | 0.0 | 0.0 | 37.0 | - | |
| Jul 5 | A | 5.3 | 0.0 | 76.8 | 2.3 | 25.6 | 52.2 | 9.7 | 14.8 | 14.9 | 44.4 | 23.4 | 23.9 | 80.4 | 3.2 | 3.3 | 44.7 | 0.0 | 20.1 |
| | B | 14.6 | 0.0 | 35.0 | 1.3 | 24.2 | 24.9 | 6.4 | 64.5 | 8.2 | 10.2 | 28.3 | 17.0 | 42.6 | 1.1 | 0.8 | 41.4 | 0.6 | |
| Jul 30 | A | 1.5 | 0.4 | 115.9 | 1.0 | 60.5 | 93.1 | 22.7 | 30.4 | 30.3 | 9.3 | 8.2 | 51.0 | 109.2 | 0.9 | 1.6 | 27.0 | 0.2 | 58.5 |
| | B | 13.0 | 0.8 | 36.3 | 1.2 | 38.6 | 55.4 | 13.9 | 14.0 | 29.2 | 17.9 | 70.1 | 26.2 | 63.5 | 2.8 | 2.0 | 29.7 | 0.9 | |
| Aug 27 | A | 1.0 | 0.3 | 141.4 | 3.4 | - | - | - | - | - | - | - | - | 79.6 | 0.0 | 4.3 | - | - | 33.3 |
| | B | 4.7 | 0.8 | 77.8 | 2.3 | - | - | - | - | - | - | - | - | 53.8 | 0.0 | 4.4 | - | - | |
| Sep 24 | A | 2.4 | 0.3 | 17.9 | 0.9 | 21.7 | 51.8 | 9.1 | 9.8 | 10.2 | 10.0 | 8.6 | 0.0 | - | 1.8 | - | - | - | 19.1 |
| | B | 2.2 | 0.5 | 47.9 | 1.8 | 21.7 | 30.3 | 15.1 | 15.1 | 16.4 | 7.9 | 8.1 | 56.2 | - | 1.2 | - | - | - | |
| Oct 24 | A | 5.4 | 0.4 | 32.6 | 1.3 | 16.6 | 15.8 | 16.3 | 16.8 | 19.6 | 19.9 | 34.4 | 36.5 | 44.7 | 1.0 | - | 34.0 | - | 36.1 |
| | B | 2.0 | 0.4 | 36.2 | 1.3 | 8.0 | 14.4 | 9.8 | 10.1 | 10.6 | 16.6 | 24.4 | 19.9 | 47.6 | 1.1 | - | 32.8 | - | |
| Dec 4 | A | 24.8 | 0.5 | 34.7 | 2.5 | 16.6 | 26.2 | 13.9 | 14.4 | 15.3 | 14.0 | 25.8 | 15.2 | 37.5 | 1.8 | - | 72.9 | 0.0 | 13.6 |
| | B | 37.3 | 0.5 | 45.0 | 1.1 | 67.4 | 74.4 | 9.2 | 8.9 | 9.6 | 10.7 | 18.9 | 15.7 | 57.1 | 2.4 | - | 57.3 | 0.0 | |

A - Surface Samples
 B - Bottom Samples
 C - Depth-composite Samples

TABLE 6: Index of Variation per Station 1974, Nanticoke Water Chemistry

| STATION | | Temp °C | Cond µmhos/cm | Turb FTU | pH SU | Total P mg/l | Diss P mg/l | Tot N mg/l | Tot Kjeld N-mg/l | Tot Org N-mg/l | NO ₃ N-mg/l | NO ₂ N-mg/l | NH ₃ N-mg/l | Tot Iron mg/l | Chloride mg/l | Sulphate SO ₄ -mg/l | Diss Si SiO ₂ -mg/l | Diss Solids mg/l | Chlorophyll* A - mg/l |
|---------|---|------------|------------------|-------------|----------|-----------------|----------------|---------------|---------------------|-------------------|---------------------------|---------------------------|---------------------------|------------------|------------------|-----------------------------------|-----------------------------------|---------------------|--------------------------|
| 112 | A | 53.1 | 1.0 | 67.5 | 2.2 | 34.3 | 39.6 | 24.2 | 17.0 | 15.6 | 83.9 | 39.5 | 59.5 | 62.5 | 7.4 | 12.6 | 75.6 | 5.4 | 74.5 |
| | B | 32.7 | 1.5 | 56.7 | 1.1 | 24.8 | 23.0 | 33.8 | 17.2 | 21.9 | 85.4 | 68.0 | 65.0 | 35.8 | 7.7 | 5.4 | 60.5 | 1.5 | |
| 501 | A | 54.7 | 1.2 | 60.5 | 3.9 | 33.1 | 28.5 | 18.8 | 13.1 | 16.1 | 29.6 | 39.5 | 70.2 | 87.9 | 8.4 | 10.6 | 37.4 | 5.5 | 61.4 |
| | B | 54.4 | 1.0 | 62.6 | 2.8 | 100.3 | 139.2 | 21.1 | 13.5 | 17.1 | 73.4 | 36.3 | 67.3 | 86.4 | 7.4 | 10.6 | 83.2 | 5.5 | |
| 518 | A | 50.0 | 1.0 | 78.5 | 1.9 | 42.0 | 46.0 | 30.9 | 18.7 | 18.8 | 78.3 | 53.2 | 73.0 | 105.2 | 7.6 | 8.3 | 66.3 | 4.6 | 45.8 |
| | B | | | | | | | | | | | | | | | | | | |
| 648 | A | 48.3 | 1.2 | 96.0 | 3.5 | 41.4 | 56.6 | 28.2 | 16.4 | 15.6 | 76.2 | 55.1 | 70.6 | 95.3 | 6.6 | 6.2 | 111.0 | 5.8 | 55.4 |
| | B | 46.7 | 1.4 | 111.0 | 2.6 | 30.6 | 40.0 | 24.6 | 17.4 | 18.4 | 74.0 | 63.2 | 60.3 | 56.7 | 6.8 | 8.0 | 124.2 | 5.2 | |
| 810 | A | 44.7 | 1.1 | 79.0 | 6.2 | 47.9 | 77.7 | 19.8 | 17.6 | 18.5 | 72.0 | 56.9 | 85.6 | 68.0 | 6.9 | 1.9 | 113.2 | 6.0 | 49.8 |
| | B | 46.1 | 1.1 | 82.6 | 5.1 | 29.0 | 50.0 | 18.4 | 12.0 | 14.0 | 74.1 | 46.3 | 64.0 | 72.9 | 8.0 | 8.9 | 71.3 | 6.3 | |
| 994 | A | 48.1 | 1.4 | 61.8 | 3.8 | 91.7 | 210.0 | 55.6 | 6.2 | 82.2 | 71.5 | 44.8 | 65.6 | 54.3 | 7.1 | 9.6 | 93.0 | 5.3 | 59.8 |
| | B | 48.0 | 1.3 | 65.9 | 4.2 | 47.5 | 44.5 | 25.2 | 21.4 | 25.3 | 71.5 | 49.7 | 55.7 | 59.0 | 6.9 | 9.6 | 71.6 | | |
| 1008 | A | 48.4 | 1.0 | 63.7 | 4.4 | 36.7 | 71.8 | 20.5 | 24.8 | 24.9 | 71.1 | 46.8 | 63.7 | 55.9 | 5.9 | 10.6 | 94.3 | 5.3 | 55.8 |
| | B | | | | | | | | | | | | | | | | | | |
| 1016 | A | 42.3 | 1.3 | 66.7 | 5.9 | 46.6 | 81.9 | 32.0 | 21.2 | 23.5 | 86.2 | 50.2 | 62.4 | 62.2 | 6.7 | 9.6 | 67.0 | 5.6 | 62.4 |
| | B | 39.8 | 0.6 | 63.7 | 4.9 | 23.5 | 44.7 | 25.5 | 18.2 | 19.5 | 70.3 | 76.2 | 60.4 | 47.4 | 6.0 | 9.6 | 106.1 | 5.3 | |
| 1040 | A | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | B | 48.9 | 1.1 | 72.5 | 4.0 | 40.3 | 68.0 | 27.7 | 15.6 | 17.2 | 81.8 | 60.4 | 67.1 | 56.4 | 7.5 | 7.1 | 77.4 | 5.9 | 50.6 |

A - Surface Samples
 B - Bottom Samples
 * - Depth-composite Samples

TABLE 7: Two-Way Analysis of Variance, 1974 Data, Nanticoke Water Chemistry

| Parameter | Degrees of Freedom | Between Dates | | | Degrees of Freedom | Between Stations | | |
|----------------------|--------------------|---------------|---------|---------------|--------------------|------------------|--------|---------------|
| | | Table F | Test F | Significance* | | Table F | Test F | Significance* |
| Temperature | 9,8 | 3.23 | 339.07 | S.D. | 8,9 | 3.39 | 2.64 | N.S.D. |
| Conductivity | 9,8 | 3.23 | 725.55 | S.D. | 8,9 | 3.39 | 3.26 | N.S.D. |
| Turbidity | 9,8 | 3.23 | 13.91 | S.D. | 8,9 | 3.39 | 4.96 | S.D. |
| pH | 9,8 | 3.23 | 10.69 | S.D. | 8,9 | 3.39 | 2.02 | N.S.D. |
| Chloride | 9,8 | 3.23 | 94.63 | S.D. | 8,9 | 3.23 | 0.23 | N.S.D. |
| Sulphate | 3,8 | 8.84 | 206.93 | S.D. | 8,3 | 4.07 | 5.35 | S.D. |
| Iron | 8,8 | 3.44 | 5.72 | S.D. | 8,8 | 3.44 | 5.06 | S.D. |
| Diss. Si. | 4,8 | 6.04 | 21.78 | S.D. | 8,4 | 3.84 | 0.65 | N.S.D. |
| Diss. Solids | 5,8 | 4.82 | 1461.52 | S.D. | 8,5 | 3.69 | 3.97 | S.D. |
| Chlorophyll <u>a</u> | 9,8 | 3.23 | 28.50 | S.D. | 8,9 | 3.39 | 1.77 | N.S.D. |
| Total P | 8,8 | 3.44 | 4.83 | S.D. | 8,8 | 3.44 | 1.29 | N.S.D. |
| Diss. P | 8,8 | 3.44 | 3.21 | N.S.D. | 8,8 | 3.44 | 0.83 | N.S.D. |
| Total N | 8,8 | 3.44 | 15.32 | S.D. | 8,8 | 3.44 | 1.36 | N.S.D. |
| Total Org. N | 8,8 | 3.44 | 1.79 | N.S.D. | 8,8 | 3.44 | 1.63 | N.S.D. |
| Total Kjeld. N | 8,8 | 3.44 | 1.11 | N.S.D. | 8,8 | 3.44 | 1.96 | N.S.D. |
| Nitrate | 8,8 | 3.44 | 126.94 | S.D. | 8,8 | 3.44 | 1.20 | N.S.D. |
| Nitrite | 8,8 | 3.44 | 24.72 | S.D. | 8,8 | 3.44 | 0.78 | N.S.D. |
| Ammonia | 8,8 | 3.44 | 30.62 | S.D. | 8,8 | 3.44 | 1.72 | N.S.D. |

* Tested at 0.05 probability;
 S.D. means significant difference;
 N.S.D. means no significant difference.

Table 8
Operation of Nera Environmental
Monitor at Nanticoke 1974

| <u>Period of Operation</u> | <u>Depth m</u> | <u>Good Data Days</u> | <u>Comment</u> |
|--------------------------------|--------------------|---------------------------|----------------|
| Aug. 7-Aug. 12 | 3.0 | 3.7 | Buoy accident |
| Aug. 7-Aug. 12 | 0.2 | 2.2 | |
| Oct. 10-Oct. 18 | 0.2 | 7.2 | |
| Oct. 19-Oct. 25 | 1.8 | 5.8 | |
| Oct. 10 | Profiling | | |

TABLE 9: Daily Means, Nanticoke, Station 1040

| Date | Depth m | Temperature °C | | Dissolved Oxygen mg/l | | Dissolved Oxygen % Saturation | | Redox Potential mV | | pH SU | Conductivity (25°C) µmhos/cm | |
|--------|------------|-------------------|------|--------------------------|------|----------------------------------|------|-----------------------|------|----------|---------------------------------|------|
| | | Mean | S.D. | Mean | S.D. | Mean | S.D. | Mean | S.D. | | Mean | S.D. |
| 1974 | | | | | | | | | | | | |
| Aug 7 | 0.25 | 21.78 | 0.33 | 9.28 | 0.33 | 105.0 | 3.4 | 301.0 | 48.8 | 8.59 | 314.4 | 4.0 |
| Aug 7 | 3.0 | 20.31 | 0.26 | 9.06 | 0.13 | 99.5 | 1.2 | 276.0 | 4.6 | 8.35 | 317.3 | 4.1 |
| Aug 8 | 0.25 | 21.82 | 0.38 | 9.40 | 0.17 | 106.6 | 2.2 | 302.2 | 70.0 | 8.73 | 308.5 | 4.3 |
| Aug 8 | 3.00 | 20.49 | 0.22 | 9.26 | 0.10 | 102.2 | 1.4 | 274.2 | 2.8 | 8.41 | 312.8 | 1.6 |
| Aug 9 | 3.0 | 21.18 | 0.13 | 9.42 | 0.07 | 105.2 | 0.9 | 264.6 | 2.1 | 8.55 | 308.1 | 3.8 |
| Aug 10 | 3.0 | 21.67 | 0.17 | 9.36 | 0.15 | 105.7 | 1.9 | 259.2 | 2.3 | 8.54 | 308.1 | 1.9 |
| Oct 10 | 0.3 | 12.52 | 0.21 | 10.03 | 0.07 | 93.8 | 0.9 | 243.8 | 10.3 | 8.29 | 307.6 | 4.0 |
| Oct 11 | 0.3 | 12.45 | 0.14 | 10.14 | 0.06 | 94.7 | 0.7 | 246.6 | 26.4 | 8.25 | 311.5 | 1.7 |
| Oct 12 | 0.3 | 12.14 | 0.14 | 10.10 | 0.13 | 93.6 | 1.3 | 285.3 | 8.0 | 8.19 | 311.1 | 3.3 |
| Oct 13 | 0.3 | 12.19 | 0.12 | 10.27 | 0.12 | 95.4 | 1.0 | 294.2 | 5.0 | 8.25 | 312.5 | 2.4 |
| Oct 14 | 0.3 | 12.56 | 0.11 | 9.93 | 0.06 | 93.0 | 0.6 | 295.8 | 5.4 | 8.15 | 315.8 | 2.0 |
| Oct 15 | 0.3 | 12.44 | 0.23 | 9.95 | 0.04 | 92.9 | 0.7 | 292.3 | 8.8 | 8.19 | 313.6 | 5.4 |
| Oct 16 | 0.3 | 12.29 | 0.25 | 9.99 | 0.06 | 93.0 | 1.0 | 300.8 | 4.6 | 8.21 | 311.7 | 3.8 |
| Oct 19 | 1.8 | 10.74 | 0.24 | 10.19 | 0.11 | 91.6 | 0.8 | 291.8 | 7.9 | 8.23 | 308.5 | 3.4 |
| Oct 20 | 1.8 | 10.47 | 0.24 | 10.34 | 0.10 | 92.4 | 0.6 | 295.7 | 9.5 | 8.26 | 303.6 | 2.7 |
| Oct 21 | 1.8 | 9.72 | 0.28 | 10.72 | 0.09 | 94.2 | 0.6 | 304.0 | 9.0 | 8.26 | 310.4 | 1.8 |
| Oct 22 | 1.8 | 9.74 | 0.20 | 10.76 | 0.09 | 94.6 | 0.8 | 292.8 | 13.9 | 8.20 | 322.5 | 4.2 |
| Oct 23 | 1.8 | 9.93 | 0.25 | 10.68 | 0.06 | 94.3 | 0.8 | 257.7 | 13.5 | 8.23 | 320.8 | 3.7 |
| Oct 24 | 1.8 | 10.40 | 0.08 | 10.65 | 0.11 | 95.0 | 0.8 | 291.2 | 11.5 | 8.24 | 315.4 | 1.4 |

**TABLE 10: Operating Schedule of the Ontario Hydro
Nanticoke Generating Station in 1974**

| Date From | To | Unit | | | |
|--------------|--------|------|---|---|---|
| | | 1 | 2 | 3 | 4 |
| Jan 1 | Jan 30 | x | x | x | 0 |
| Jan 31 | Mar 20 | x | 0 | x | 0 |
| Mar 21 | Apr 10 | 0 | x | x | x |
| Apr 11 | Apr 17 | 0 | x | x | 0 |
| Apr 18 | May 15 | 0 | x | x | x |
| May 16 | May 29 | 0 | 0 | 0 | x |
| May 30 | Jun 12 | x | x | 0 | x |
| Jun 13 | Jun 19 | x | x | x | x |
| Jun 20 | Jun 26 | 0 | x | x | x |
| Jun 27 | Jul 10 | x | x | x | x |
| Jul 11 | Jul 31 | x | x | x | 0 |
| Aug 1 | Dec 14 | 0 | 0 | 0 | 0 |
| Dec 15 | Dec 20 | 0 | 0 | 0 | x |
| Dec 21 | Dec 31 | x | 0 | x | x |

x means unit operational during the given time period

0 means the unit not in operation

Note: Schedule is based on weekly records, the dates given do not necessarily agree with the real date when the unit was put into operation. Some units were running only several hours during the period shown in the Table.

TABLE 11: Results of Kolmogorov-Smirnov Distribution Test

| Date 1974 | August 7 - 9 | | | August 7 - 12 | | | October 10 - 17 | | | October 19 - 25 | | |
|-----------------|--------------|-------|----------|---------------|-------|------------|-----------------|-------|----------|-----------------|-------|----------|
| Depth m | 0.2 | | | 3.0 | | | 0.2 | | | 1.8 | | |
| No. of Points | 108 | | | 179 | | | 344 | | | 282 | | |
| Distribution | Norm | Expon | Log-norm | Norm | Expon | Log-normal | Norm | Expon | Log-norm | Norm | Expon | Log-norm |
| Temperature | 0.192 | 0.001 | 0.170 | 0.006 | 0.0 | 0.009 | 0.127 | 0.0 | 0.063 | 0.0 | 0.0 | 0.0 |
| Diss. Oxygen | 0.735 | 0.001 | 0.587 | 0.121 | 0.0 | 0.093 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Conductivity | 0.362 | 0.001 | 0.304 | 0.032 | 0.0 | 0.037 | 0.021 | 0.0 | 0.003 | 0.136 | 0.0 | 0.171 |
| Redox Potential | 0.012 | 0.0 | 0.001 | 0.013 | 0.0 | 0.008 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| pH | 0.625 | 0.006 | 0.484 | 0.044 | 0.0 | 0.040 | 0.002 | 0.0 | 0.004 | 0.011 | 0.0 | 0.004 |

Norm - Normal
 Expon - Exponential
 Log-norm - Log-normal

Table 12: Maximum Values of Time Gradients
of Measured Parameters

| Parameter | Date 1974 | | Depth m | Increase/hr. over Period of | | Decrease/hr. over Period of | |
|----------------------------------|------------|------------|------------|--------------------------------|---------|--------------------------------|---------|
| | From | To | | 1 Hour | 4 Hours | 1 Hour | 4 Hours |
| Temperature °C | August 7 | August 11 | 3.0 | 0.40 | 0.18 | - 0.40 | - 0.24 |
| | August 7 | August 9 | 0.25 | 0.73 | 0.19 | - 0.90 | - 0.22 |
| | October 10 | October 17 | 0.20 | 0.35 | 0.17 | - 0.25 | - 0.13 |
| | October 19 | October 25 | 1.80 | 0.42 | 0.15 | - 0.30 | - 0.15 |
| Dissolved Oxygen mg/l | August 7 | August 11 | 3.0 | 0.20 | 0.08 | - 0.22 | - 0.06 |
| | August 7 | August 9 | 0.25 | 0.38 | 0.16 | - 0.32 | - 0.09 |
| | October 10 | October 17 | 0.20 | 0.13 | 0.05 | - 0.17 | - 0.06 |
| | October 19 | October 25 | 1.80 | 0.22 | 0.08 | - 0.17 | - 0.06 |
| Dissolved Oxygen % Saturation | August 7 | August 11 | 3.0 | 2.18 | 0.93 | - 2.85 | - 0.75 |
| | August 7 | August 9 | 0.25 | 4.52 | 1.39 | - 3.15 | - 1.20 |
| | October 10 | October 17 | 0.20 | 1.63 | 0.64 | - 1.80 | - 0.68 |
| | October 19 | October 25 | 1.80 | 1.70 | 0.56 | - 1.40 | - 0.40 |
| Redox Potential mV | August 7 | August 11 | 3.0 | 5.50 | 1.88 | - 6.24 | - 2.13 |
| | August 7 | August 9 | 0.25 | 154.0 | 44.1 | -139.5 | -29.8 |
| | October 10 | October 17 | 0.20 | 24.0 | 10.5 | - 28.5 | -11.1 |
| | October 19 | October 25 | 1.80 | 20.5 | 9.2 | - 26.8 | -12.7 |
| pH SU | August 7 | August 11 | 3.0 | 0.15 | 0.04 | - 0.14 | - 0.02 |
| | August 7 | August 9 | 0.25 | 0.22 | 0.12 | - 0.36 | - 0.07 |
| | October 10 | October 17 | 0.20 | 0.06 | 0.04 | - 0.05 | - 0.03 |
| | October 19 | October 25 | 1.80 | 0.08 | 0.03 | - 0.12 | - 0.04 |
| Conductivity µmhos/cm | August 7 | August 11 | 3.0 | 9.5 | 2.0 | - 8.5 | - 2.4 |
| | August 7 | August 9 | 0.25 | 15.0 | 3.1 | - 13.5 | - 2.0 |
| | October 10 | October 17 | 0.20 | 9.5 | 2.9 | - 6.5 | - 2.4 |
| | October 19 | October 25 | 1.80 | 9.0 | 2.5 | - 6.5 | - 2.1 |

TABLE 13: Significant Spectral Periods in Hours

| Date | Depth | Temperature | | Conductivity | | pH | | DO | | Redox | |
|--------------------|-------|------------------|-------------------|---|------|--------------------|------|-----------|-----|--------------------|------------------|
| | | 80% | 95% | 80% | 95% | 80% | 95% | 80% | 95% | 80% | 95% |
| Aug 7 - Aug 11 | 3.0 | 6.86;3.00 | - | 3.10;2.00 | - | 1.50;1.33 | - | - | - | 1.5 | - |
| Aug 7 - Aug 11 | 0.25 | 5.33;3.69 | 2.53;2.09 1.78 | 4.36;3.34; 3.00;2.53; 1.92;1.71; 1.58;1.45 1.33 | 9.60 | 9.60;6.00; 2.09 | 16.0 | 2.82;2.18 | - | 5.33;1.78 | 16.0;8.0 3.43 |
| Oct 10 - Oct 17 | 0.20 | - | - | - | - | - | - | 16.0 | - | 9.60;5.33; 2.22 | - |
| Oct 19 - Oct 25 | 1.8 | 6.4;1.88 1.78 | - | - | 8.80 | 12.0;8.0; 4.0 | - | 2.7 | - | 2.82;2.09; 1.95 | 3.20 |

Note: 80 percent and 95 percent indicate confidence level.

Table 14: Two-Way Analysis of Variance, 1970-1974 Data, Nanticoke

| <u>Parameter</u> | <u>Between Years</u> | | <u>Between Stations</u> | |
|------------------|----------------------|---------------------|-------------------------|---------------------|
| | <u>F(4,270)</u> | <u>Significance</u> | <u>F(8,270)</u> | <u>Significance</u> |
| Conductivity | 63.22 | S.D. | 1.10 | N.S.D. |
| pH | 29.28 | S.D. | 1.42 | N.S.D. |
| Turbidity | 6.38 | S.D. | 3.65 | S.D. |
| Total P | 15.72 | S.D. | 2.63 | N.S.D. |
| Total N | 13.78 | S.D. | 1.62 | N.S.D. |

S.D. means significant difference

N.S.D. means no significant difference

Table 15: Changes in Water Chemistry 1969-1974, Nanticoke

| <u>Parameter</u> | <u>Unit</u> | <u>Mean</u> | <u>Value*</u> | <u>Mean Monthly Change</u> | |
|------------------|-------------|-------------|---------------|--|-----------|
| | | | | <u>Variation at 95% Confidence Level</u> | |
| | | | | <u>From</u> | <u>To</u> |
| Conductivity | µmhos/cm | 317.6 | -0.252 | -0.163 | -0.340 |
| Turbidity | FTU | 4.02 | -0.008 | +0.020 | -0.037 |
| pH | SU | 8.24 | -0.006 | -0.002 | -0.009 |
| Total P | mg/l | 0.0185 | -0.00002 | +0.00006 | -0.00010 |
| Total N | mg/l | 0.390 | +0.0007 | +0.0020 | -0.0006 |

* Negative sign indicates decrease, number is the mean change of the property per month in unit shown.

Appendix I, Table 1, Water Temperature, °C, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|----------|
| 112 | 1.0 | 4.9 | 4.5 | 12.7 | 13.0* | 16.0 | 20.5 | 22.5 | 15.8 | 10.5 | 5.8 | 12.6 | 6.68 |
| | 12.0 | - | - | 10.5 | | 10.5 | 15.2 | - | 15.8 | 10.1 | 5.8 | 11.3 | 3.69 |
| 501 | 1.0 | 2.7 | 3.9 | 11.4 | 13.0 | 14.6 | 20.8 | 22.8 | 15.0 | 11.5 | 5.9 | 12.2 | 6.67 |
| | 12.0 | 2.7 | 3.9 | 8.9 | 8.5 | 9.6 | 14.7 | 20.2 | 14.9 | 10.0 | 5.9 | 9.9 | 5.38 |
| 518 | 3.0 | 7.3 | 7.8 | 12.4 | 13.1 | 15.6 | 20.8 | 23.0 | 15.0 | 10.6 | 3.2 | 12.9 | 6.45 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 5.5 | 5.0 | 12.8 | 13.2 | 15.9 | 20.3 | 22.3 | 15.7 | 11.2 | 5.2 | 12.7 | 6.13 |
| | 7.0 | 5.5 | 5.0 | 10.5 | 13.2 | 14.2 | 17.5 | 22.3 | 15.5 | 10.5 | 5.2 | 12.4 | 5.79 |
| 810 | 1.0 | - | 8.0 | 14.0 | 13.3 | 15.2 | 20.3 | 22.8 | 15.0 | 10.0 | 3.0 | 13.5 | 6.03 |
| | 8.0 | - | 8.0 | 10.8 | 13.3 | 13.2 | 20.1 | 22.5 | 15.0 | 10.0 | 3.0 | 12.9 | 5.95 |
| 994 | 1.0 | 5.9 | 7.8 | 14.0 | 12.4 | 13.9 | 21.0 | 22.8 | 15.0 | 11.0 | 3.6 | 12.7 | 6.10 |
| | 7.0 | 5.9 | 7.8 | 10.6 | 12.3 | 11.6 | 18.3 | 22.2 | 15.0 | 10.0 | 3.6 | 11.7 | 5.61 |
| 1008 | 3.0 | 5.0 | 7.4 | 12.0 | 13.4 | 12.6 | 19.6 | - | 14.8 | 11.0 | 2.3 | 10.9 | 5.27 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 5.4 | 7.8 | 13.6 | 12.9 | 15.2 | 20.3 | - | 15.2 | 11.5 | 5.0 | 11.9 | 5.03 |
| | 9.0 | 5.4 | 7.8 | 10.8 | 11.1 | 12.2 | 17.8 | - | 15.2 | 10.1 | 5.0 | 10.6 | 4.21 |
| 1040 | 1.0 | 6.7 | - | - | - | - | - | - | - | - | - | 6.7 | - |
| | 3.0 | - | 6.7 | 11.8 | 13.9 | 14.2 | 21.0 | 22.8 | 15.0 | 9.8 | 2.5 | 13.1 | 6.40 |
| 1041 | Surface | 5.2 | 6.2 | 13.1 | 13.0 | 15.1 | 20.5 | 22.6 | 15.3 | 11.0 | 4.8 | | |
| | Bottom | 4.9 | 6.5 | 10.6 | 12.0 | 12.2 | 17.8 | 22.0 | 15.2 | 10.1 | 4.4 | | |
| Std Dev | Surface | 1.35 | 1.89 | 1.00 | 0.35 | 0.79 | 0.30 | 0.23 | 0.37 | 0.59 | 1.19 | | |
| | Bottom | 1.46 | 1.71 | 0.85 | 1.99 | 1.78 | 2.31 | 1.03 | 0.33 | 0.19 | 1.37 | | |

mid-depth

APPENDIX I, Table 2, Conductivity, $\mu\text{mhos/cm}$, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|-----------|
| 112 | 1.0 | 310 | - | 310 | 308* | 310 | 310 | 304 | 304 | 308 | 303 | 307 | 3.15 |
| | 12.0 | - | - | 312 | | 310 | 315 | - | 304 | 308 | 303 | 309 | 4.63 |
| 501 | 1.0 | 310 | - | 310 | 300 | 310 | 310 | 304 | 304 | 308 | 303 | 307 | 3.84 |
| | 12.0 | 310 | - | 310 | 310 | 310 | 308 | 304 | 304 | 308 | 302 | 307 | 3.16 |
| 518 | 3.0 | 310 | - | 309 | 310 | 310 | 313 | 304 | 306 | 306 | 305 | 308 | 2.98 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 315 | - | 310 | 308 | 310 | - | 304 | 304 | 306 | 305 | 308 | 3.81 |
| | 7.0 | 315 | - | 310 | 308 | 310 | 315 | 306 | 304 | 306 | 304 | 308 | 4.21 |
| 810 | 1.0 | 315 | - | 309 | 308 | 310 | 310 | 304 | 306 | 308 | - | 309 | 3.42 |
| | 8.0 | 315 | - | 309 | 310 | 310 | 313 | 304 | 306 | 308 | - | 309 | 3.54 |
| 994 | 1.0 | 315 | - | 310 | 300 | 310 | 313 | 306 | 304 | 310 | 304 | 310 | 4.32 |
| | 7.0 | 310 | - | 313 | 315 | 310 | 313 | 306 | - | 308 | 304 | 310 | 4.06 |
| 1008 | 3.0 | 315 | - | 310 | 310 | 310 | 313 | 308 | 306 | 310 | 305 | 310 | 3.12 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 315 | - | 305 | 300 | 310 | 310 | 306 | 306 | 308 | 307 | 307 | 4.13 |
| | 9.0 | 310 | - | 310 | 310 | 310 | 313 | 310 | 308 | 310 | 306 | 310 | 1.87 |
| 1040 | 1.0 | 315 | - | - | - | - | - | - | - | - | - | 315 | - |
| | 3.0 | - | - | 309 | 310 | 310 | 315 | 304 | 306 | 310 | 305 | 309 | 3.54 |
| Mean | Surface | 313 | - | 309 | 303 | 310 | 311 | 305 | 305 | 308 | 304 | | |
| | Bottom | 312 | - | 310 | 310 | 310 | 313 | 306 | 305 | 308 | 304 | | |
| Std Dev | Surface | 2.5 | - | 2.00 | 4.3 | 0.00 | 1.34 | 1.03 | 1.03 | 1.26 | 1.50 | | |
| | Bottom | 2.74 | - | 1.51 | 2.35 | 0.00 | 2.48 | 2.33 | 1.63 | 1.38 | 1.41 | | |

*Depth 6.2 m

APPENDIX I, Table 3, Turbidity, FTU, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|----------|
| 112 | 1.0 | 2.4 | 3.6 | 3.7 | 2.1* | 1.1 | 0.69 | 0.7 | 1.0 | 4.5 | 4.4 | 2.4 | 1.62 |
| | 12.0 | - | - | 3.6 | | 1.7 | 1.8 | - | 1.0 | 4.7 | 5.0 | 3.0 | 1.70 |
| 501 | 1.0 | 2.1 | 2.8 | 2.4 | 1.5 | 1.4 | 0.64 | 0.55 | 0.80 | 2.6 | 4.2 | 1.9 | 1.15 |
| | 12.0 | 2.0 | 2.2 | 1.8 | 1.5 | 2.7 | 0.68 | 0.70 | 0.95 | 2.2 | 4.7 | 1.9 | 1.19 |
| 518 | 3.0 | 6.5 | 3.2 | 13.0 | 5.8 | 4.4 | 1.5 | 0.20 | 1.5 | 3.7 | 6.9 | 4.7 | 3.69 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 1.8 | 3.4 | 10.0 | 1.6 | 1.1 | - | 0.90 | 1.2 | 2.3 | 4.5 | 3.0 | 2.88 |
| | 7.0 | 1.5 | 4.0 | 13.0 | 1.6 | 1.1 | 2.1 | 0.75 | 1.2 | 2.4 | 4.9 | 3.3 | 3.67 |
| 810 | 1.0 | 3.2 | 2.5 | 10.0 | 6.6 | 5.4 | 1.0 | 0.20 | 1.3 | 3.1 | 7.9 | 4.1 | 3.24 |
| | 8.0 | 3.1 | 3.0 | 8.9 | 7.4 | 3.3 | 1.0 | 0.15 | 1.4 | 3.1 | - | 3.5 | 2.89 |
| 994 | 1.0 | 1.7 | 3.8 | 11.0 | 6.3 | 7.7 | 5.2 | 2.0 | 1.2 | 4.0 | 6.0 | 4.9 | 3.03 |
| | 7.0 | 1.7 | 5.3 | 11.0 | 6.4 | 3.7 | 1.6 | 1.6 | - | 4.2 | 5.8 | 4.6 | 3.03 |
| 1008 | 3.0 | 1.0 | 2.4 | 6.2 | 7.9 | 2.1 | 2.4 | 5.7 | 3.1 | 3.4 | 9.2 | 4.3 | 2.74 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 2.1 | 4.0 | 9.4 | 7.1 | 5.9 | 0.88 | 8.0 | 1.3 | 1.9 | 4.4 | 4.5 | 3.00 |
| | 9.0 | 2.2 | 7.5 | 7.9 | 5.0 | 2.9 | 1.4 | 1.9 | 1.0 | 4.2 | 3.7 | 3.8 | 2.42 |
| 1040 | 1.0 | 6.8 | - | - | - | - | - | - | - | - | - | 6.8 | - |
| | 3.0 | - | 8.3 | 14.0 | 9.5 | 2.9 | 2.3 | 0.3 | 2.7 | 6.2 | 11.0 | 6.4 | 4.64 |
| San | Surface | 2.9 | 3.4 | 7.8 | 4.6 | 3.8 | 1.7 | 2.1 | 1.1 | 3.1 | 5.8 | | |
| | Bottom | 2.1 | 5.0 | 8.6 | 5.2 | 2.6 | 1.6 | 0.9 | 1.4 | 3.9 | 5.8 | | |
| Std Dev | Surface | 1.80 | 0.59 | 3.70 | 2.82 | 2.92 | 1.97 | 2.97 | 0.19 | 1.01 | 2.01 | | |
| | Bottom | 0.62 | 2.45 | 4.58 | 3.21 | 0.91 | 0.58 | 0.70 | 0.67 | 1.41 | 2.61 | | |

mid-depth

APPENDIX I, Table 4, pH, SU, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|----------|
| 112 | 1.0 | 7.9 | 7.9 | 8.1 | 7.8* | 8.2 | 8.4 | 8.0 | 8.3 | 8.2 | 8.3 | 8.1 | 0.181 |
| | 12.0 | - | - | 8.2 | | 8.1 | 8.1 | - | 8.3 | 8.2 | 8.3 | 8.2 | 0.089 |
| 501 | 1.0 | 7.9 | 7.9 | 8.1 | 7.5 | 8.1 | 8.3 | 7.5 | 8.2 | 8.2 | 8.4 | 8.0 | 0.31 |
| | 12.0 | 7.9 | 7.7 | 8.1 | 7.7 | 8.1 | 8.3 | 8.0 | 7.9 | 8.2 | 8.3 | 8.0 | 0.22 |
| 518 | 3.0 | 8.0 | 7.9 | 7.9 | 8.0 | 8.2 | 8.1 | 8.0 | 8.3 | 8.2 | 8.3 | 8.1 | 0.152 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 7.9 | 7.4 | 8.1 | 7.8 | 8.2 | - | 8.0 | 8.2 | 8.2 | 8.3 | 8.0 | 0.28 |
| | 7.0 | 8.0 | 7.6 | 8.0 | 8.1 | 8.2 | 8.0 | 7.9 | 8.3 | 8.2 | 8.3 | 8.1 | 0.21 |
| 810 | 1.0 | 6.7 | 8.0 | 8.1 | 8.0 | 8.1 | 8.2 | 7.5 | 8.1 | 8.3 | 8.3 | 7.9 | 0.49 |
| | 8.0 | 7.0 | 8.0 | 8.0 | 8.0 | 8.1 | 8.2 | 7.6 | 8.2 | 8.3 | - | 7.9 | 0.403 |
| 994 | 1.0 | 7.7 | 8.0 | 8.2 | 7.3 | 8.0 | 8.2 | 7.9 | 8.2 | 8.2 | 8.3 | 8.0 | 0.306 |
| | 7.0 | 7.8 | - | 8.0 | 7.4 | 8.0 | 8.2 | 7.6 | - | 8.2 | 8.4 | 8.0 | 0.334 |
| 1008 | 3.0 | 7.5 | 7.5 | 8.1 | 7.2 | 8.0 | 8.1 | 8.0 | 8.1 | 8.1 | 8.2 | 7.9 | 0.346 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 7.1 | 7.5 | 8.1 | 7.0 | 7.7 | 8.3 | 7.5 | 8.1 | 8.2 | 7.8 | 7.7 | 0.455 |
| | 9.0 | 7.3 | 7.9 | 7.7 | 7.1 | 7.9 | 8.2 | 7.8 | 8.1 | 8.3 | 8.1 | 7.8 | 0.386 |
| 1040 | 1.0 | 6.5 | - | - | - | - | - | - | - | - | - | 6.5 | - |
| | 3.0 | - | 8.1 | 8.0 | 8.0 | 8.2 | 8.1 | 8.0 | 8.2 | 8.2 | 8.3 | 8.0 | 0.318 |
| Mean | Surface | 7.4 | 7.8 | 8.1 | 7.5 | 8.0 | 8.3 | 7.7 | 8.2 | 8.2 | 8.2 | | |
| | Bottom | 7.6 | 7.9 | 8.0 | 7.7 | 8.1 | 8.2 | 7.8 | 8.2 | 8.2 | 8.3 | | |
| Std Dev | Surface | 0.609 | 0.264 | 0.040 | 0.396 | 0.187 | 0.083 | 0.258 | 0.075 | 0.040 | 0.216 | | |
| | Bottom | 0.430 | 0.207 | 0.153 | 0.397 | 0.107 | 0.097 | 0.183 | 0.151 | 0.048 | 0.098 | | |

Mid-depth

APPENDIX I, Table 5, Dissolved Solids, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|----------|
| 112 | 1.0 | 202 | 228 | 202 | 202 | 202 | - | - | - | - | 198 | 206 | 11.06 |
| | 12.0 | - | - | 203 | 202 | 205 | - | - | - | - | 198 | 202 | 2.94 |
| 501 | 1.0 | 202 | 228 | 202 | - | 202 | 202 | - | - | - | 198 | 205 | 11.22 |
| | 12.0 | 202 | 228 | 202 | - | 202 | 200 | - | - | - | 198 | 205 | 11.22 |
| 518 | 3.0 | 202 | 224 | 201 | - | 202 | 203 | - | - | - | 198 | 205 | 9.46 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 205 | 228 | 202 | - | 202 | - | - | - | - | 198 | 207 | 12.00 |
| | 7.0 | 205 | 228 | 202 | - | 202 | 205 | - | - | - | 198 | 207 | 10.76 |
| 810 | 1.0 | - | 228 | 201 | - | 202 | 202 | - | - | - | 198 | 206 | 12.30 |
| | 8.0 | - | 228 | 201 | - | 202 | 203 | - | - | - | 198 | 208 | 13.03 |
| 994 | 1.0 | 205 | 228 | 202 | - | 202 | 203 | - | - | - | 198 | 206 | 10.86 |
| | 7.0 | 202 | 228 | 203 | - | 202 | 203 | - | - | - | 198 | | |
| 1008 | 3.0 | 205 | 228 | 202 | - | 202 | 203 | - | - | - | 198 | 206 | 10.94 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 205 | 231 | 198 | - | 202 | 202 | - | - | - | 198 | 206 | 12.54 |
| | 9.0 | 202 | 228 | 202 | - | 202 | 203 | - | - | - | 198 | 206 | 11.00 |
| 1040 | 1.0 | 205 | - | - | - | - | - | - | - | - | 198 | 205 | - |
| | 3.0 | - | 228 | 201 | - | 202 | 205 | - | - | - | 198 | 206 | 12.11 |
| San | Surface | 204 | 228 | 201 | 202 | 202 | 202 | - | - | - | 198 | | |
| | Bottom | 203 | 228 | 202 | 202 | 202 | 203 | - | - | - | 198 | | |
| Std Dev | Surface | 1.54 | 1.22 | 1.60 | - | 0.00 | 0.50 | - | - | - | 0.0 | | |
| | Bottom | 1.50 | 0 | 0.81 | - | 1.13 | 1.83 | - | - | - | 0.0 | | |

APPENDIX I, Table 6, Total Phosphorus as P, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|-------|-----------|
| 112 | 1.0 | 0.018 | 0.024 | 0.015F | 0.015 | 0.017 | 0.012 | - | 0.016 | 0.024F | 0.033 | 0.019 | 0.00652 |
| | 12.0 | - | - | 0.013F | - | 0.015 | 0.024 | - | 0.016F | 0.019F | 0.023 | 0.018 | 0.00446 |
| 501 | 1.0 | 0.009 | 0.019 | - | 0.011 | 0.011 | 0.008 | - | 0.017 | 0.018F | 0.020 | 0.014 | 0.00464 |
| | 12.0 | 0.014 | 0.015 | 0.052F | 0.012 | 0.009 | 0.013 | - | 0.013 | 0.017F | 0.086 | 0.026 | 0.02609 |
| 518 | 3.0 | 0.010 | 0.019 | 0.018F | 0.024 | 0.014 | 0.034 | - | 0.015 | 0.027F | 0.039 | 0.023 | 0.00967 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.017 | 0.022 | 0.025F | 0.011 | 0.008 | 0.014 | - | 0.014 | 0.015 | 0.030 | 0.017 | 0.00703 |
| | 7.0 | 0.011 | 0.020 | 0.025F | 0.012 | 0.014 | 0.026F | - | 0.014F | 0.018 | 0.021 | 0.018 | 0.00551 |
| 810 | 1.0 | 0.011 | 0.010 | 0.038F | 0.022 | 0.011 | 0.019 | - | 0.013 | 0.019F | 0.026 | 0.019 | 0.00911 |
| | 8.0 | 0.012 | 0.025 | 0.022F | 0.023 | 0.015 | 0.013 | - | 0.019 | 0.021 | 0.025 | 0.019 | 0.00500 |
| 994 | 1.0 | 0.007 | 0.128 | 0.042F | 0.028 | 0.013 | 0.019 | - | 0.024 | 0.021F | 0.025 | 0.034 | 0.00365 |
| | 7.0 | 0.008 | 0.018 | 0.020F | 0.030 | 0.010 | 0.017 | - | 0.020 | 0.020 | 0.028 | 0.019 | 0.00677 |
| 1008 | 3.0 | 0.020 | 0.017 | 0.037F | 0.042 | 0.025 | 0.021 | - | 0.015 | 0.020 | 0.028 | 0.025 | 0.00917 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.010 | 0.010 | 0.032 | 0.027 | 0.014 | 0.039 | - | 0.018 | 0.017 | 0.028 | 0.022 | 0.01026 |
| | 9.0 | 0.018 | 0.012 | 0.020F | 0.025 | 0.014 | 0.023 | - | 0.014 | 0.021 | 0.021 | 0.019 | 0.00447 |
| 1040 | 1.0 | 0.021 | - | - | - | - | - | - | - | - | - | 0.021 | - |
| | 3.0 | - | 0.031 | 0.037F | 0.028 | 0.018 | 0.037 | - | 0.011 | 0.020F | 0.042 | 0.028 | 0.01169 |
| Mean | Surface | 0.013 | 0.017 | 0.030 | 0.019 | 0.012 | 0.018 | - | 0.017 | 0.019 | 0.027 | | |
| | Bottom | 0.013 | 0.020 | 0.027 | 0.022 | 0.014 | 0.022 | - | 0.015 | 0.019 | 0.035 | | |
| Std Dev | Surface | 0.00631 | 0.00633 | 0.01074 | 0.00772 | 0.00307 | 0.01089 | - | 0.00389 | 0.00316 | 0.00447 | | |
| | Bottom | 0.00371 | 0.00691 | 0.01224 | 0.00786 | 0.00339 | 0.00849 | - | 0.00325 | 0.00151 | 0.02358 | | |

F indicates that analysis was performed on a non-frozen sample.

Appendix I, Table 7, Dissolved Phosphorus, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|----------|---------|-------|----------|
| 112 | 1.0 | 0.010 | 0.007 | 0.007F | 0.005* | 0.010 | 0.002 | - | 0.008 | 0.004F | 0.008 | 0.007 | 0.00277 |
| | 12.0 | - | - | 0.005F | | 0.008 | 0.006 | - | 0.005F | 0.004F | 0.005 | 0.006 | 0.00137 |
| 501 | 1.0 | 0.006 | 0.007 | 0.006F | 0.004 | 0.003 | 0.003 | - | 0.004F | 0.004 | 0.004 | 0.005 | 0.00142 |
| | 12.0 | 0.010 | 0.007 | 0.044F | 0.003 | 0.004 | 0.004 | - | 0.005F | 0.004F | 0.027 | 0.009 | 0.01253 |
| 518 | 3.0 | 0.004 | 0.004 | 0.011F | 0.008 | 0.006 | 0.015 | - | 0.008 | 0.004 | 0.008 | 0.008 | 0.00367 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.005 | 0.012 | 0.009F | 0.003 | 0.002 | 0.003 | - | 0.008 | 0.004F | 0.008 | 0.006 | 0.00339 |
| | 7.0 | 0.004 | 0.008 | 0.007F | 0.003 | 0.006 | 0.008F | - | 0.004F | 0.003F | 0.005 | 0.005 | 0.00200 |
| 810 | 1.0 | 0.004 | 0.005 | 0.021F | 0.006 | 0.005 | 0.005 | - | 0.004F | 0.004 | 0.008 | 0.007 | 0.00544 |
| | 8.0 | 0.003 | 0.015 | 0.009F | 0.006 | 0.006 | 0.005 | - | 0.006 | 0.005 | 0.005 | 0.007 | 0.0035 |
| 994 | 1.0 | 0.003 | 0.121 | 0.024F | 0.006 | 0.006 | 0.006 | - | 0.004F | 0.005 | 0.006 | 0.013 | 0.02731 |
| | 7.0 | 0.002 | 0.007 | 0.011F | 0.005 | 0.004 | 0.006 | - | - | 0.004 | 0.006 | 0.006 | 0.00266 |
| 1008 | 3.0 | 0.003 | 0.013 | 0.020F | 0.007 | 0.013 | 0.007 | - | 0.004F | 0.003 | 0.006 | 0.008 | 0.00574 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.002 | 0.003 | 0.020F | 0.004 | 0.004 | 0.017 | - | 0.008F | 0.003 | 0.009 | 0.008 | 0.00655 |
| | 9.0 | 0.004 | 0.003 | 0.007F | 0.006 | 0.005 | 0.010 | - | 0.003F | 0.004 | 0.006 | 0.005 | 0.00223 |
| 1040 | 1.0 | 0.004 | - | - | - | - | - | - | - | - | - | 0.004 | - |
| | 3.0 | - | 0.016 | 0.021F | 0.005 | 0.007 | 0.017 | - | 0.003 | 0.004F | 0.011 | 0.010 | 0.00680 |
| Mean | Surface | 0.005 | 0.016 | 0.012 | 0.005 | 0.005 | 0.006 | - | 0.007 | 0.004 | 0.007 | | |
| | Bottom | 0.005 | 0.009 | 0.015 | 0.005 | 0.006 | 0.008 | - | 0.004 | 0.004 | 0.008 | | |
| Std Dev | Surface | 0.00261 | 0.03490 | 0.00694 | 0.00134 | 0.00261 | 0.00558 | - | 0.00362 | 0.000632 | 0.00183 | | |
| | Bottom | 0.00313 | 0.00508 | 0.00138 | 0.00136 | 0.00149 | 0.00443 | - | 0.00121 | 0.000577 | 0.00595 | | |

indicates that analysis was performed on a non-frozen sample.

mid-depth

Appendix I, Table 8, Total Nitrogen, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|----------|
| 112 | 1.0 | 0.483 | 0.553 | 0.465 | 0.410* | 0.425 | 0.435 | - | 0.367 | 0.242 | 0.314 | 0.410 | 0.0992 |
| | 12.0 | - | - | 0.455 | | 0.505 | 0.633 | - | 0.297 | 0.270 | 0.334 | 0.416 | 0.1405 |
| 501 | 1.0 | 0.423 | 0.492 | 0.385 | 0.410 | 0.405 | 0.395 | - | 0.309 | 0.283 | 0.274 | 0.374 | 0.0701 |
| | 12.0 | 0.484 | 0.532 | 0.425 | 0.390 | 0.435 | 0.405 | - | 0.258 | 0.305 | 0.364 | 0.400 | 0.0843 |
| 518 | 3.0 | 0.464 | 0.523 | 0.689 | 0.510 | 0.485 | 0.455 | - | 0.247 | 0.281 | 0.337 | 0.443 | 0.1368 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.494 | 0.492 | 0.618 | 0.370 | 0.394 | 0.445 | - | 0.277 | 0.251 | 0.345 | 0.410 | 0.1158 |
| | 7.0 | 0.404 | 0.552 | 0.587 | 0.380 | 0.424 | 0.522 | - | 0.310 | 0.301 | 0.327 | 0.420 | 0.1034 |
| 810 | 1.0 | 0.402 | 0.453 | 0.618 | 0.470 | 0.444 | 0.435 | - | 0.317 | 0.364 | 0.378 | 0.431 | 0.0853 |
| | 8.0 | 0.542 | 0.473 | 0.587 | 0.470 | 0.454 | 0.455 | - | 0.328 | 0.362 | 0.386 | 0.451 | 0.0828 |
| 994 | 1.0 | 0.414 | 1.254 | 0.639 | 0.520 | 0.456 | 0.475 | - | 0.327 | 0.272 | 0.385 | 0.527 | 0.2930 |
| | 7.0 | 0.434 | 0.693 | 0.518 | 0.520 | 0.435 | 0.495 | - | 0.347 | 0.322 | 0.355 | 0.458 | 0.1154 |
| 1008 | 3.0 | 0.393 | 0.383 | 0.528 | 0.480 | 0.485 | 0.505 | - | 0.316 | 0.360 | 0.297 | 0.416 | 0.0853 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.593 | 0.573 | 0.567 | 0.540 | 0.345 | 0.696 | - | 0.317 | 0.328 | 0.290 | 0.472 | 0.1511 |
| | 9.0 | 0.664 | 0.473 | 0.495 | 0.490 | 0.448 | 0.536 | - | 0.388 | 0.280 | 0.317 | 0.455 | 0.1160 |
| 1040 | 1.0 | 0.634 | - | - | - | - | - | - | - | - | - | 0.634 | - |
| | 3.0 | - | 0.473 | 0.641 | 0.440 | 0.484 | 0.516 | - | 0.258 | 0.301 | 0.398 | 0.439 | 0.1215 |
| Mean | Surface | 0.492 | 0.636 | 0.564 | 0.462 | 0.412 | 0.480 | - | 0.319 | 0.290 | 0.331 | | |
| | Bottom | 0.506 | 0.545 | 0.530 | 0.448 | 0.455 | 0.509 | - | 0.312 | 0.306 | 0.354 | | |
| Std Dev | Surface | 0.0907 | 0.3059 | 0.1113 | 0.0719 | 0.0399 | 0.1088 | - | 0.0291 | 0.0471 | 0.0459 | | |
| | Bottom | 0.1029 | 0.0901 | 0.0783 | 0.0556 | 0.0293 | 0.0710 | - | 0.0471 | 0.0300 | 0.0304 | | |

mid-depth

Appendix I, Table 9, Total Kjeldahl Nitrogen N-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|-----------|
| 112 | 1.0 | 0.20 | 0.27 | 0.27F | 0.25* | 0.26 | 0.30 | - | 0.35 | 0.23F | 0.30 | 0.27 | 0.0459 |
| | 12.0 | - | - | 0.25F | | 0.28 | 0.39 | - | 0.28F | 0.26F | 0.32 | 0.30 | 0.0516 |
| 501 | 1.0 | 0.19 | 0.25 | 0.21F | 0.27 | 0.22 | 0.26 | - | 0.29 | 0.27 | 0.26 | 0.25 | 0.0327 |
| | 12.0 | 0.26 | 0.29 | 0.25F | 0.25 | 0.23 | 0.27 | - | 0.24 | 0.29F | 0.35 | 0.27 | 0.0364 |
| 518 | 3.0 | 0.18 | 0.31 | 0.35F | 0.34 | 0.28 | 0.30 | - | 0.23 | 0.27F | 0.32 | 0.29 | 0.0543 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.30 | 0.24 | 0.34F | 0.23 | 0.22 | 0.29 | - | 0.26 | 0.24 | 0.33 | 0.27 | 0.0443 |
| | 7.0 | 0.17 | 0.30 | 0.31F | 0.24 | 0.25 | 0.31F | - | 0.29F | 0.29 | 0.31 | 0.27 | 0.0469 |
| 810 | 1.0 | 0.23 | 0.24 | 0.35F | 0.30 | 0.24 | 0.28 | - | 0.30 | 0.35 | 0.36 | 0.29 | 0.0510 |
| | 8.0 | 0.32 | 0.26 | 0.29F | 0.31 | 0.26 | 0.29 | - | 0.31 | 0.35 | 0.37 | 0.31 | 0.0370 |
| 994 | 1.0 | 0.25 | 1.03 | 0.39F | 0.34F | 0.25 | 0.31 | - | 0.31 | 0.26F | 0.37 | 0.39 | 0.2453 |
| | 7.0 | 0.27 | 0.48 | 0.26F | 0.34F | 0.25 | 0.32 | - | 0.33 | 0.31 | 0.34 | 0.32 | 0.0685 |
| 008 | 3.0 | 0.15 | 0.18 | 0.31F | 0.30F | 0.32 | 0.34 | - | 0.30 | 0.35 | 0.28 | 0.28 | 0.0695 |
| | | | | | | | | | | | | | |
| 016 | 1.0 | 0.37 | 0.35 | 0.33 | 0.36F | 0.32 | 0.53 | - | 0.30 | 0.32 | 0.27 | 0.35 | 0.0741 |
| | 9.0 | 0.42 | 0.27 | 0.26F | 0.31F | 0.27 | 0.36 | - | 0.37 | 0.27 | 0.30 | 0.31 | 0.0563 |
| 040 | 1.0 | 0.38 | - | - | - | - | - | - | - | - | - | 0.38 | - |
| | 3.0 | - | 0.26 | 0.32F | 0.27 | 0.27 | 0.34 | - | 0.24 | 0.29F | 0.38 | 0.30 | 0.0468 |
| an | Surface | 0.27 | 0.40 | 0.32 | 0.30 | 0.25 | 0.33 | - | 0.30 | 0.28 | 0.32 | | |
| | Bottom | 0.29 | 0.31 | 0.28 | 0.29 | 0.26 | 0.33 | - | 0.29 | 0.29 | 0.34 | | |
| d Dev | Surface | 0.0776 | 0.3130 | 0.0644 | 0.0524 | 0.0371 | 0.1003 | - | 0.0292 | 0.0470 | 0.0459 | | |
| | Bottom | 0.0914 | 0.0848 | 0.0292 | 0.0393 | 0.0167 | 0.0467 | - | 0.0472 | 0.0293 | 0.0302 | | |

indicates that the analysis was performed on a non-frozen sample.

id-depth ..

Appendix I, Table 10, Total Organic Nitrogen, N-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|----------|
| 112 | 1.0 | 0.250 | 0.250 | 0.250 | 0.260* | 0.230 | 0.295 | - | 0.340 | 0.210 | 0.285 | 0.264 | 0.0411 |
| | 12.0 | - | - | 0.220 | - | 0.230 | 0.380 | - | 0.270 | 0.240 | 0.300 | 0.273 | 0.0598 |
| 501 | 1.0 | 0.170 | 0.230 | 0.200 | 0.260 | 0.190 | 0.255 | - | 0.280 | 0.260 | 0.245 | 0.232 | 0.0374 |
| | 12.0 | 0.230 | 0.280 | 0.230 | 0.245 | 0.180 | 0.260 | - | 0.230 | 0.270 | 0.335 | 0.251 | 0.0429 |
| 518 | 3.0 | 0.170 | 0.300 | 0.310 | 0.320 | 0.235 | 0.290 | - | 0.220 | 0.260 | 0.305 | 0.268 | 0.0505 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.280 | 0.230 | 0.290 | 0.220 | 0.195 | 0.285 | - | 0.250 | 0.220 | 0.310 | 0.253 | 0.0394 |
| | 7.0 | 0.150 | 0.290 | 0.290 | 0.235 | 0.220 | 0.265 | - | 0.280 | 0.270 | 0.295 | 0.255 | 0.0469 |
| 810 | 1.0 | 0.220 | 0.230 | 0.300 | 0.285 | 0.200 | 0.270 | - | 0.290 | 0.340 | 0.345 | 0.276 | 0.0509 |
| | 8.0 | 0.310 | 0.250 | 0.270 | 0.295 | 0.220 | 0.285 | - | 0.300 | 0.330 | 0.355 | 0.291 | 0.0407 |
| 994 | 1.0 | 0.230 | 1.010 | 0.320 | 0.320 | 0.205 | 0.300 | - | 0.280 | 0.240 | 0.350 | 0.330 | 0.2713 |
| | 7.0 | 0.250 | 0.470 | 0.240 | 0.320 | 0.200 | 0.310 | - | 0.300 | 0.290 | 0.325 | 0.301 | 0.0760 |
| 1008 | 3.0 | 0.140 | 0.170 | 0.280 | 0.275 | 0.275 | 0.330 | - | 0.290 | 0.330 | 0.265 | 0.262 | 0.0652 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.350 | 0.340 | 0.290 | 0.345 | 0.275 | 0.515 | - | 0.290 | 0.310 | 0.250 | 0.329 | 0.0774 |
| | 9.0 | 0.390 | 0.260 | 0.250 | 0.290 | 0.220 | 0.350 | - | 0.350 | 0.250 | 0.280 | 0.293 | 0.0572 |
| 1040 | 1.0 | 0.360 | - | - | - | - | - | - | - | - | - | 0.360 | - |
| | 3.0 | - | 0.250 | 0.290 | 0.255 | 0.225 | 0.330 | - | 0.230 | 0.280 | 0.360 | 0.278 | 0.0478 |
| Mean | Surface | 0.266 | 0.382 | 0.275 | 0.286 | 0.216 | 0.320 | - | 0.288 | 0.263 | 0.298 | | |
| | Bottom | 0.266 | 0.300 | 0.256 | 0.273 | 0.214 | 0.336 | - | 0.282 | 0.276 | 0.321 | | |
| Std Dev | Surface | 0.0694 | 0.3108 | 0.0432 | 0.0491 | 0.0321 | 0.0969 | - | 0.0292 | 0.0516 | 0.0454 | | |
| | Bottom | 0.0898 | 0.0848 | 0.0282 | 0.0332 | 0.0174 | 0.0980 | - | 0.0462 | 0.0293 | 0.0302 | | |

mid-depth

Appendix I, Table 11, Nitrate, N-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|-------|-----------|
| 12 | 1.0 | 0.220 | 0.280 | 0.190F | 0.157* | 0.160 | 0.130 | - | 0.010 | 0.008F | 0.012 | 0.126 | 0.1057 |
| | 12.0 | - | - | 0.200F | | 0.220 | 0.230 | - | 0.010 | 0.008F | 0.012 | 0.133 | 0.1136 |
| 01 | 1.0 | 0.230 | 0.240 | 0.170F | 0.137 | 0.180 | 0.130 | - | 0.013 | 0.011F | 0.012 | 0.161 | 0.0477 |
| | 12.0 | 0.220 | 0.240 | 0.170F | 0.137 | 0.200 | 0.130 | - | 0.012 | 0.012F | 0.012 | 0.126 | 0.0924 |
| 18 | 3.0 | 0.280 | 0.210 | 0.330F | 0.167 | 0.200 | 0.150 | - | 0.011 | 0.008 | 0.015 | 0.152 | 0.1190 |
| 48 | 1.0 | 0.190 | 0.250 | 0.270F | 0.137 | 0.170 | 0.150 | - | 0.010 | 0.009 | 0.013 | 0.133 | 0.1014 |
| | 7.0 | 0.230 | 0.250 | 0.270F | 0.137 | 0.170 | 0.200F | - | 0.013 | 0.008F | 0.014 | 0.144 | 0.1066 |
| 10 | 1.0 | 0.170 | 0.210 | 0.260F | 0.167 | 0.200 | 0.150 | - | 0.011 | 0.010 | 0.015 | 0.133 | 0.0957 |
| | 8.0 | 0.220 | 0.210 | 0.290F | 0.157 | 0.190 | 0.160 | - | 0.012 | 0.010 | 0.014 | 0.140 | 0.1038 |
| 94 | 1.0 | 0.160 | 0.220 | 0.240F | 0.177 | 0.200 | 0.160 | - | 0.011 | 0.010 | 0.013 | 0.132 | 0.0944 |
| | 7.0 | 0.160 | 0.210 | 0.250F | 0.177 | 0.180 | 0.170 | - | 0.011 | 0.010 | 0.013 | 0.131 | 0.0937 |
| 08 | 3.0 | 0.240 | 0.200 | 0.210F | 0.176 | 0.160 | 0.160 | - | 0.012 | 0.008 | 0.015 | 0.131 | 0.0931 |
| 16 | 1.0 | 0.220 | 0.220 | 0.230F | 0.177 | 0.018 | 0.160 | - | 0.011 | 0.006 | 0.017 | 0.118 | 0.1017 |
| | 9.0 | 0.230 | 0.200 | 0.230F | 0.177 | 0.170 | 0.170 | - | 0.012 | 0.008 | 0.015 | 0.135 | 0.0949 |
| 40 | 1.0 | 0.250 | - | - | - | - | - | - | - | - | - | 0.250 | - |
| | 3.0 | - | 0.210 | 0.310F | 0.167 | 0.210 | 0.170 | - | 0.012 | 0.009F | 0.016 | 0.138 | 0.1129 |
| an | Surface | 0.206 | 0.225 | 0.227 | 0.159 | 0.155 | 0.147 | - | 0.011 | 0.009 | 0.014 | | |
| | Bottom | 0.212 | 0.220 | 0.246 | 0.159 | 0.191 | 0.176 | - | 0.012 | 0.009 | 0.014 | | |
| 3 Dev | Surface | 0.0330 | 0.0291 | 0.0393 | 0.0204 | 0.0688 | 0.0136 | - | 0.00109 | 0.0017 | 0.0019 | | |
| | Bottom | 0.0295 | 0.0200 | 0.0496 | 0.0183 | 0.0195 | 0.0315 | - | 0.00095 | 0.0014 | 0.0014 | | |

indicates that the analysis was performed on a non-frozen sample.

id-depth

Appendix I, Table 12, Nitrite, N-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|---------|---------|---------|--------|---------|---------|--------|---------|---------|---------|-------|-----------|
| 112 | 1.0 | 0.003 | 0.003 | 0.005F | 0.003* | 0.005 | 0.005 | - | 0.007 | 0.004F | 0.002 | 0.004 | 0.00158 |
| | 12.0 | - | - | 0.005F | | 0.005 | 0.013 | - | 0.007 | 0.002F | 0.002 | 0.006 | 0.00408 |
| 501 | 1.0 | 0.003 | 0.002 | 0.005F | 0.003 | 0.005 | 0.005 | - | 0.006 | 0.002 | 0.002 | 0.004 | 0.00158 |
| | 12.0 | 0.004 | 0.002 | 0.005F | 0.003 | 0.005 | 0.005 | - | 0.006 | 0.003F | 0.002 | 0.004 | 0.00145 |
| 518 | 3.0 | 0.004 | 0.003 | 0.009F | 0.003 | 0.005 | 0.005 | - | 0.006 | 0.003 | 0.002 | 0.004 | 0.00212 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.004 | 0.002 | 0.008F | 0.003 | 0.004 | 0.005 | - | 0.007 | 0.002 | 0.002 | 0.004 | 0.00220 |
| | 7.0 | 0.004 | 0.002 | 0.007F | 0.003 | 0.004 | 0.012F | - | 0.007 | 0.003F | 0.003 | 0.005 | 0.00316 |
| 810 | 1.0 | 0.002 | 0.003 | 0.008F | 0.003 | 0.004 | 0.005 | - | 0.006 | 0.004 | 0.003 | 0.004 | 0.00227 |
| | 8.0 | 0.002 | 0.003 | 0.007F | 0.003 | 0.004 | 0.005 | - | 0.006 | 0.002 | 0.002 | 0.004 | 0.00185 |
| 994 | 1.0 | 0.004 | 0.004 | 0.009F | 0.003 | 0.006 | 0.005 | - | 0.006 | 0.002 | 0.002 | 0.005 | 0.00224 |
| | 7.0 | 0.004 | 0.003 | 0.008F | 0.003 | 0.005 | 0.005 | - | 0.006 | 0.002 | 0.002 | 0.004 | 0.00198 |
| 1008 | 3.0 | 0.003 | 0.003 | 0.008F | 0.004 | 0.005 | 0.005 | - | 0.004 | 0.002 | 0.002 | 0.004 | 0.00187 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.003 | 0.003 | 0.007F | 0.003 | 0.007 | 0.006 | - | 0.006 | 0.002 | 0.003 | 0.004 | 0.00200 |
| | 9.0 | 0.014 | 0.003 | 0.005F | 0.003 | 0.008 | 0.006 | - | 0.006 | 0.002 | 0.002 | 0.005 | 0.00381 |
| 1040 | 1.0 | 0.004 | - | - | - | - | - | - | - | - | - | 0.004 | - |
| | 3.0 | - | 0.003 | 0.011F | 0.003 | 0.004 | 0.006 | - | 0.006 | 0.002F | 0.002 | 0.005 | 0.00302 |
| Mean | Surface | 0.003 | 0.003 | 0.007 | 0.003 | 0.005 | 0.005 | - | 0.006 | 0.003 | 0.002 | | |
| | Bottom | 0.006 | 0.003 | 0.007 | 0.003 | 0.005 | 0.007 | - | 0.006 | 0.002 | 0.002 | | |
| Std Dev | Surface | 0.00075 | 0.00075 | 0.00167 | 0.0 | 0.00116 | 0.00040 | - | 0.00051 | 0.00103 | 0.00051 | | |
| | Bottom | 0.00477 | 0.00051 | 0.00219 | 0.0 | 0.00141 | 0.00350 | - | 0.00048 | 0.00488 | 0.00037 | | |

F indicates that the analysis was performed on a non-frozen sample.

*mid-depth

APPENDIX I, Table 13, Ammonia, N-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|-------|----------|
| 112 | 1.0 | 0.010 | 0.020 | 0.020F | 0.010* | 0.030 | 0.005 | - | 0.010 | 0.020F | 0.015 | 0.022 | 0.01308 |
| | 12.0 | - | - | 0.030F | | 0.050 | 0.010 | - | 0.010 | 0.020F | 0.020 | 0.023 | 0.01506 |
| 501 | 1.0 | 0.020 | 0.020 | 0.010F | 0.010 | 0.030 | 0.005 | - | 0.010 | 0.010 | 0.015 | 0.019 | 0.01333 |
| | 12.0 | 0.030 | 0.010 | 0.020F | 0.005 | 0.050 | 0.010 | - | 0.010 | 0.020 | 0.015 | 0.024 | 0.01616 |
| 518 | 3.0 | 0.010 | 0.010 | 0.040F | 0.020 | 0.045 | 0.010 | - | 0.010 | 0.010 | 0.015 | 0.019 | 0.01387 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.020 | 0.010 | 0.050F | 0.010 | 0.025 | 0.005 | - | 0.010 | 0.020 | 0.020 | 0.019 | 0.01341 |
| | 7.0 | 0.020 | 0.010 | 0.020F | 0.005 | 0.030 | 0.045F | - | 0.010 | 0.020F | 0.015 | 0.024 | 0.01446 |
| 810 | 1.0 | 0.010 | 0.010 | 0.050F | 0.015 | 0.040 | 0.010 | - | 0.010 | 0.010 | 0.015 | 0.018 | 0.0154 |
| | 8.0 | 0.010 | 0.010 | 0.020F | 0.015 | 0.040 | 0.005 | - | 0.010 | 0.020 | 0.015 | 0.016 | 0.01024 |
| 994 | 1.0 | 0.020 | 0.020 | 0.070F | 0.020 | 0.045 | 0.010 | - | 0.030 | 0.020 | 0.020 | 0.028 | 0.01837 |
| | 7.0 | 0.020 | 0.010 | 0.020F | 0.020 | 0.050 | 0.010 | - | 0.030 | 0.020 | 0.015 | 0.022 | 0.01225 |
| 1008 | 3.0 | 0.010 | 0.010 | 0.030F | 0.025 | 0.045 | 0.010 | - | 0.010 | 0.020 | 0.015 | 0.019 | 0.01210 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.020 | 0.010 | 0.040F | 0.015 | 0.045 | 0.015 | - | 0.010 | 0.010 | 0.020 | 0.021 | 0.01310 |
| | 9.0 | 0.030 | 0.010 | 0.010F | 0.020 | 0.050 | 0.010 | - | 0.020 | 0.020 | 0.020 | 0.021 | 0.01269 |
| 1040 | 1.0 | 0.020 | - | - | - | - | - | - | - | - | - | 0.020 | - |
| | 3.0 | - | 0.010 | 0.030F | 0.015 | 0.045 | 0.010 | - | 0.010 | 0.010F | 0.020 | 0.019 | 0.01275 |
| Mean | Bottom | 0.018 | 0.015 | 0.040 | 0.014 | 0.036 | 0.008 | - | 0.010 | 0.015 | 0.018 | | |
| | Surface | 0.022 | 0.010 | 0.021 | 0.013 | 0.045 | 0.014 | - | 0.014 | 0.019 | 0.017 | | |
| Std Dev | Bottom | 0.00462 | 0.00547 | 0.02191 | 0.00483 | 0.00861 | 0.00408 | - | 0.0 | 0.00547 | 0.00273 | | |
| | Surface | 0.00836 | 0.00 | 0.00690 | 0.00683 | 0.00763 | 0.01367 | - | 0.00786 | 0.00378 | 0.00267 | | |

indicates that analysis was performed on a non-frozen sample.

mid-depth,

APPENDIX I, Table 14, Total Iron, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|-----------|
| 112 | 1.0 | 0.10 | - | 0.12 | 0.07* | 0.06 | 0.05L | 0.05L | - | 0.15 | 0.24 | 0.11 | 0.0688 |
| | 12.0 | - | - | 0.10 | | 0.13 | 0.18 | - | - | 0.15 | 0.25 | 0.16 | 0.0572 |
| 501 | 1.0 | 0.17 | 0.13 | 0.05 | 0.03 | 0.10 | 0.05L | 0.05L | - | 0.05 | 0.21 | 0.06 | 0.0527 |
| | 12.0 | 0.06 | 0.15 | 0.08 | 0.03 | 0.31 | 0.05L | 0.05L | - | 0.05 | 0.21 | 0.11 | 0.095 |
| 518 | 3.0 | 0.15 | 0.08 | 0.88 | 0.30 | 0.26 | 0.29 | 0.10 | - | 0.10 | 0.32 | 0.19 | 0.1999 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 0.10 | 0.20 | 0.56 | 0.04 | 0.06 | - | 0.10 | - | 0.10 | 0.27 | 0.18 | 0.1716 |
| | 7.0 | 0.15 | 0.18 | 0.25 | 0.04 | 0.06 | 0.10 | 0.05 | - | 0.10 | 0.12 | 0.12 | 0.0680 |
| 810 | 1.0 | 0.10 | - | 0.47 | 0.43 | 0.35 | 0.11 | 0.15 | - | 0.10 | 0.16 | 0.23 | 0.1564 |
| | 8.0 | 0.18 | - | 0.64 | 0.41 | 0.21 | 0.09 | 0.10 | - | 0.15 | 0.58 | 0.30 | 0.2188 |
| 994 | 1.0 | 0.18 | 0.23 | 0.68 | 0.28 | 0.49 | 0.38 | 0.15 | - | 0.15 | 0.41 | 0.33 | 0.1791 |
| | 7.0 | 0.06 | 0.55 | 0.40 | 0.29 | 0.24 | 0.11 | 0.20 | - | 0.15 | 0.33 | 0.26 | 0.1533 |
| 1008 | 3.0 | 0.53 | 0.10 | 0.25 | 0.40 | 0.14 | 0.25 | 0.30 | - | 0.10 | 0.46 | 0.28 | 0.1565 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 0.44 | 0.10 | 0.36 | 0.34 | 0.45 | 0.06 | 0.35 | - | 0.05 | 0.18 | 0.26 | 0.1617 |
| | 9.0 | 0.14 | 0.34 | 0.38 | 0.34 | 0.30 | 0.07 | 0.20 | - | 0.15 | 0.18 | 0.23 | 0.1090 |
| 1040 | 1.0 | 0.18 | - | - | - | - | - | - | - | - | - | 0.18 | - |
| | 3.0 | - | 0.53 | 0.87 | 0.53 | 0.22 | 0.29 | 0.20 | - | 0.20 | 0.53 | 0.42 | 0.2368 |
| Mean | Surface | 0.18 | 0.16 | 0.37 | 0.22 | 0.25 | 0.13 | 0.14 | - | 0.10 | 0.24 | | |
| | Bottom | 0.12 | 0.35 | 0.39 | 0.27 | 0.21 | 0.13 | 0.13 | - | 0.14 | 0.31 | | |
| Std Dev | Surface | 0.1203 | 0.0602 | 0.2478 | 0.1806 | 0.2011 | 0.1420 | 0.1114 | | 0.0447 | 0.0900 | | |
| | Bottom | 0.0549 | 0.1880 | 0.2866 | 0.2015 | 0.0894 | 0.0826 | 0.0752 | | 0.0475 | 0.1770 | | |

L indicates that the actual value is less than the recorded one.

*mid-depth

APPENDIX I, Table 15, Chloride, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|-----------|
| 112 | 1.0 | 22.8 | 23.7 | 22.0 | 20.0* | 19.4 | 23.3 | 22.5 | 20.0 | 21.5 | 23.0 | 20.0 | 1.478 |
| | 12.0 | - | - | 24.0 | | 19.4 | 23.1 | - | 20.5 | 21.5 | 22.0 | 21.8 | 1.679 |
| 501 | 1.0 | 23.0 | 23.6 | 24.0 | 20.0 | 19.4 | 22.9 | - | 20.5 | 21.0 | 22.0 | 22.3 | 1.877 |
| | 12.0 | 23.0 | 23.7 | 24.0 | 20.0 | 19.4 | 23.3 | 22.5 | 20.5 | 21.0 | 22.0 | 21.9 | 1.626 |
| 518 | 3.0 | 22.7 | 23.4 | 21.0 | 20.0 | 19.0 | 24.1 | 22.5 | 20.5 | 21.0 | 23.0 | 21.7 | 1.652 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | 23.0 | 23.6 | 22.0 | 20.0 | 19.4 | - | 22.5 | 21.0 | 21.5 | 23.0 | 21.8 | 1.431 |
| | 7.0 | 22.8 | 23.4 | 22.0 | 20.0 | 19.0 | 23.1 | 22.5 | 21.0 | 21.0 | 23.0 | 21.8 | 1.475 |
| 810 | 1.0 | 22.7 | 23.1 | 22.0 | 20.0 | 19.0 | 23.1 | 22.5 | 20.0 | 21.5 | 23.0 | 21.7 | 1.507 |
| | 8.0 | 22.7 | 23.2 | 23.0 | 20.0 | 19.0 | 24.8 | 22.5 | 20.5 | 21.5 | 23.0 | 22.0 | 1.749 |
| 994 | 1.0 | 22.8 | 23.1 | 24.0 | 20.0 | 19.4 | 23.3 | 22.5 | 20.5 | 21.5 | 23.0 | 22.0 | 1.565 |
| | 7.0 | 22.8 | 23.1 | 24.0 | 20.0 | 19.4 | 23.1 | 22.5 | - | 21.5 | 22.0 | 22.0 | 1.513 |
| 1008 | 3.0 | 22.7 | 23.2 | 22.0 | 20.0 | 19.4 | 22.9 | 22.5 | 21.5 | 21.5 | 23.0 | 21.9 | 1.294 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | 22.8 | 23.1 | 23.0 | 20.0 | 19.4 | 23.4 | 22.5 | 20.5 | 21.5 | 23.0 | 21.9 | 1.463 |
| | 9.0 | 22.7 | 23.1 | 22.0 | 20.0 | 19.4 | 22.9 | 22.5 | 21.0 | 21.5 | 23.0 | 21.8 | 1.308 |
| 1040 | 1.0 | 23.0 | - | - | - | - | - | - | - | - | - | 23.0 | - |
| | 3.0 | - | 23.2 | 21.0 | 20.0 | 19.0 | 23.8 | 22.5 | 20.5 | 21.5 | 23.0 | 21.6 | 1.623 |
| in | Surface | 22.9 | 23.4 | 22.8 | 20.0 | 19.3 | 23.2 | 22.5 | 20.4 | 21.4 | 22.8 | | |
| | Bottom | 22.8 | 23.3 | 22.9 | 20.0 | 19.2 | 23.4 | 22.5 | 20.7 | 21.4 | 22.6 | | |
| Std Dev | Surface | 0.125 | 0.294 | 0.983 | 0.0 | 0.163 | 0.200 | 0.0 | 0.376 | 0.204 | 0.408 | | |
| | Bottom | 0.122 | 0.231 | 1.215 | 0.0 | 0.213 | 0.663 | 0.0 | 0.258 | 0.244 | 0.534 | | |

id-depth

APPENDIX I, Table 16, Sulphate, SO₄-mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|-----------|
| 112 | 1.0 | - | - | - | 26.0* | 25.0 | 27.0 | 21.0 | - | - | - | 24.3 | 3.055 |
| | 12.0 | - | - | - | | 25.0 | 27.0 | - | - | - | - | 26.0 | 1.414 |
| 501 | 1.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.0 | - | - | - | 24.8 | 2.630 |
| | 12.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.0 | - | - | - | 24.8 | 2.630 |
| 301 | 3.0 | - | - | - | 26.0 | 27.0 | 28.0 | 23.0 | - | - | - | 26.0 | 2.160 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | - | - | - | 26.0 | 25.0 | - | 23.0 | - | - | - | 24.7 | 1.528 |
| | 7.0 | - | - | - | 26.0 | 26.0 | 28.0 | 23.0 | - | - | - | 25.8 | 2.062 |
| 810 | 1.0 | - | - | - | 26.0 | 27.0 | 28.0 | 23.0 | - | - | - | 26.0 | 2.160 |
| | 8.0 | - | - | - | 26.0 | 26.0 | 28.0 | 22.5 | - | - | - | 25.6 | 2.287 |
| 994 | 1.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.5 | - | - | - | 24.9 | 2.394 |
| | 7.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.5 | - | - | - | 24.9 | 2.394 |
| 1008 | 3.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.0 | - | - | - | 24.8 | 2.630 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.5 | - | - | - | 24.9 | 2.394 |
| | 9.0 | - | - | - | 26.0 | 25.0 | 27.0 | 21.5 | - | - | - | 24.9 | 2.394 |
| 1040 | 1.0 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3.0 | - | - | - | 26.0 | 26.0 | 28.0 | 23.5 | - | - | - | 25.9 | 1.843 |
| Mean | Surface | - | - | - | 26.0 | 25.0 | 27.2 | 21.8 | - | - | - | | |
| | Bottom | - | - | - | 26.0 | 25.4 | 27.4 | 22.2 | - | - | - | | |
| Std Dev | Surface | - | - | - | 0.0 | 0.816 | 0.447 | 0.930 | - | - | - | | |
| | Bottom | - | - | - | 0.0 | 0.534 | 0.534 | 0.983 | - | - | - | | |

mid-depth

APPENDIX I, Table 17, Dissolved Silica, mg/l, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|----------|
| 112 | 1.0 | - | - | - | 1.0* | 0.10 | 0.40 | - | - | 0.10 | 0.15 | 0.19 | 0.143 |
| | 12.0 | - | - | - | | 0.30 | 0.60 | - | - | 0.10 | 0.35 | 0.34 | 0.205 |
| 501 | 1.0 | - | - | - | 0.35 | 0.20 | 0.35 | - | - | 0.20 | 0.15 | 0.25 | 0.093 |
| | 12.0 | - | - | - | 1.10 | 0.20 | 0.40 | - | - | 0.20 | 0.35 | 0.45 | 0.374 |
| 518 | 3.0 | - | - | - | 0.25 | 0.30 | 0.50 | - | - | 0.10 | 0.10 | 0.25 | 0.165 |
| | | | | | | | | | | | | | |
| 648 | 1.0 | - | - | - | 1.30 | 0.10 | - | - | - | 0.10 | 0.55 | 0.51 | 0.566 |
| | 7.0 | - | - | - | 1.30 | 0.10 | 0.50 | - | - | 0.10 | 0.10 | 0.42 | 0.521 |
| 810 | 1.0 | - | - | - | 1.30 | 0.30 | 0.40 | - | - | 0.10 | 0.10 | 0.44 | 0.498 |
| | 8.0 | - | - | - | 0.45 | 0.20 | 0.50 | - | - | 0.10 | 0.15 | 0.27 | 0.192 |
| 994 | 1.0 | - | - | - | 1.20 | 0.30 | 0.30 | - | - | 0.10 | 0.40 | 0.46 | 0.427 |
| | 7.0 | - | - | - | 0.95 | 0.20 | 0.55 | - | - | 0.15 | 0.40 | 0.45 | 0.322 |
| 1008 | 3.0 | - | - | - | 1.20 | 0.20 | 0.40 | - | - | 0.10 | 0.40 | 0.46 | 0.433 |
| | | | | | | | | | | | | | |
| 1016 | 1.0 | - | - | - | 0.25 | 0.30 | 0.70 | - | - | 0.10 | 0.70 | 0.41 | 0.274 |
| | 9.0 | - | - | - | 1.10 | 0.20 | 0.50 | - | - | 0.10 | 0.10 | 0.40 | 0.424 |
| 1040 | 1.0 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 3.0 | - | - | - | 0.55 | 0.40 | 0.90 | - | - | 0.10 | 0.15 | 0.42 | 0.325 |
| an | Surface | - | - | - | 0.88 | 0.22 | 0.43 | - | - | 0.12 | 0.34 | | |
| | Bottom | - | - | - | 0.91 | 0.23 | 0.58 | - | - | 0.12 | 0.23 | | |
| Mid Dev | Surface | | | | 0.532 | 0.098 | 0.156 | | | 0.040 | 0.247 | | |
| | Bottom | | | | 0.336 | 0.095 | 0.172 | | | 0.039 | 0.131 | | |

Mid-depth

APPENDIX I, Table 18, Chlorophyll A*, Nanticoke 1974

| Station | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|---------|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|-----------|
| 112 | | 0.7 | 0.3 | 1.0 | 1.3 | 0.9 | 0.6 | 0.3 | 1.9 | 1.0 | 3.0 | 1.1 | 0.81 |
| 501 | | 1.2 | 0.5 | 1.0 | 1.3 | 1.1 | 0.7 | 0.3 | 1.2 | 1.4 | 3.0 | 1.2 | 0.73 |
| 518 | | 1.4 | 1.0 | 2.1 | 1.5 | 0.9 | 1.8 | 0.3 | 1.6 | 1.3 | 2.8 | 1.5 | 0.68 |
| 648 | | 0.8 | 1.2 | 1.7 | 1.5 | 0.8 | 1.0 | 0.4 | 2.0 | 1.9 | 3.3 | 1.5 | 0.83 |
| 810 | | 0.5 | 1.2 | 1.7 | 1.5 | 1.1 | 0.7 | 0.4 | 1.4 | 0.8 | 2.1 | 1.1 | 0.54 |
| 994 | | 1.2 | 0.8 | 2.3 | 2.6 | 0.9 | 1.5 | 0.7 | 1.2 | 0.8 | 3.3 | 1.5 | 0.89 |
| 1008 | | 0.8 | 1.4 | 1.5 | 2.0 | 0.6 | 1.1 | 0.6 | 1.4 | 0.7 | 2.9 | 1.3 | 0.72 |
| 1016 | | 0.8 | 0.9 | 1.6 | 2.2 | 0.8 | 0.3 | 0.7 | 1.5 | 1.6 | 3.0 | 1.3 | 0.81 |
| 1040 | | 0.8 | 1.0 | 1.6 | 1.9 | 0.6 | 2.3 | 0.4 | 1.3 | 1.9 | 2.4 | 1.4 | 0.70 |
| Mean | | 0.9 | 0.9 | 1.6 | 1.8 | 0.9 | 1.1 | 0.5 | 1.5 | 1.3 | 2.9 | | |
| Std Dev | | 0.28 | 0.34 | 0.43 | 0.44 | 0.18 | 0.64 | 0.16 | 0.28 | 0.46 | 0.39 | | |

*Depth composite samples

APPENDIX I, Table 19, Phenols, $\mu\text{g}/\text{l}$, Nanticoke 1974

| on | Depth-m | Apr 24 | May 7 | May 22 | Jun 18 | Jul 5 | Jul 30 | Aug 27 | Sep 24 | Oct 24 | Dec 4 | Mean | Std. Dev. |
|-----|---------|--------|-------|--------|--------|-------|--------|--------|--------|--------|-------|------|-----------|
| 12 | 1.0 | | | | | | | | | | | | |
| | 12.0 | | | | | | | | | | | | |
| 01 | 1.0 | | | | | | | | | | | | |
| | 12.0 | | | | | | | | | | | | |
| 18 | 3.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 18 | 1.0 | | | | | | | | | | | | |
| | 7.0 | | | | | | | | | | | | |
| 10 | 1.0 | | | | | | | | | | | | |
| | 8.0 | | | | | | | | | | | | |
| 94 | 1.0 | | | | | | | | | | | | |
| | 7.0 | | | | | | | | | | | | |
| 08 | 3.0 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| 16 | 1.0 | | | | | | | | | | | | |
| | 9.0 | | | | | | | | | | | | |
| 40 | 1.0 | | | | | | | | | | | | |
| | 3.0 | | | | | | | | | | | | |
| | Surface | | | | | | | | | | | | |
| | Bottom | | | | | | | | | | | | |
| Dev | Surface | | | | | | | | | | | | |
| | Bottom | | | | | | | | | | | | |

ALL VALUES LOWER THAN 1.0 $\mu\text{g}/\text{l}$

id-depth

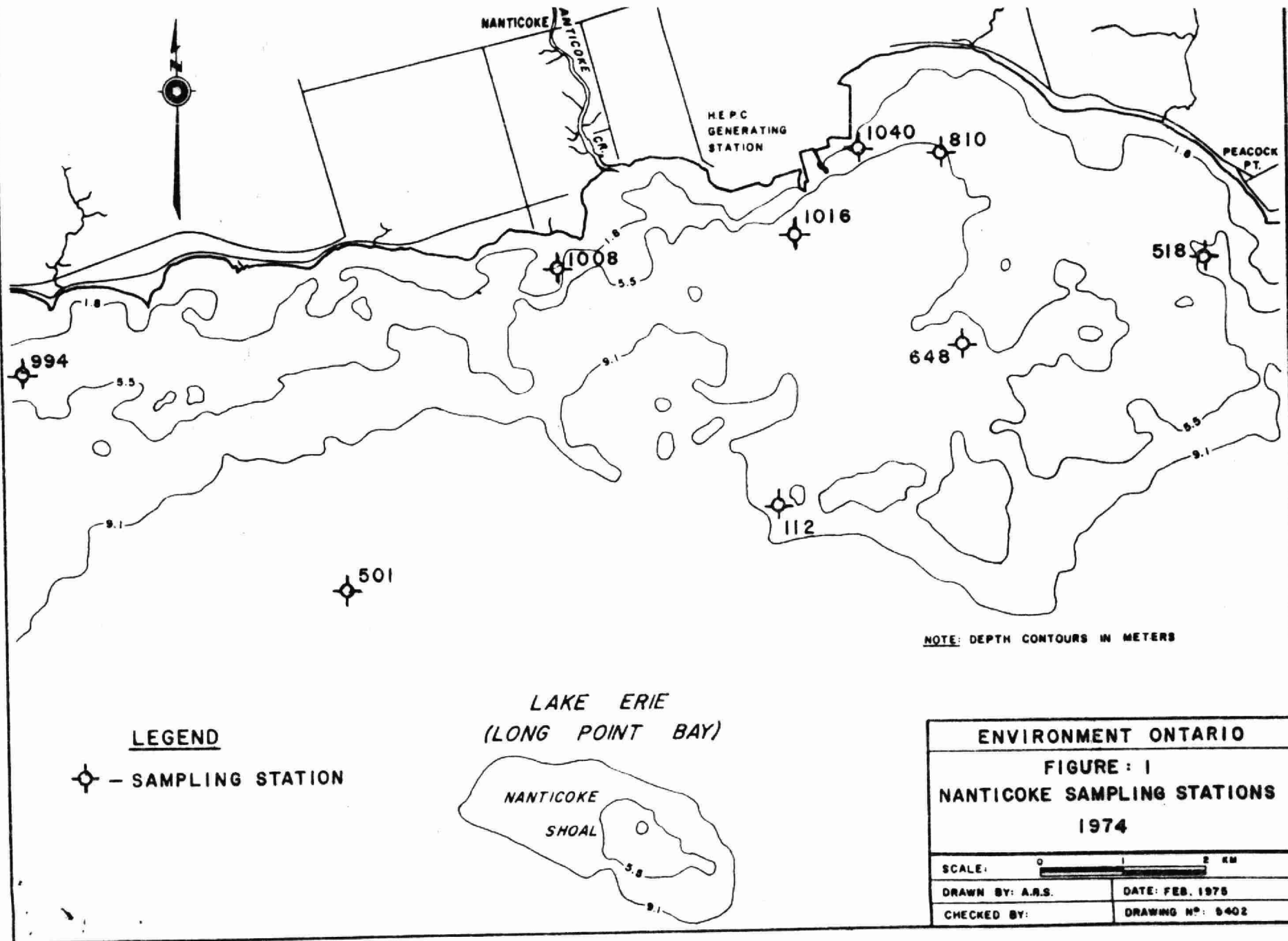


FIGURE 2 : 1969 -1974 VARIATION OF CONDUCTIVITY

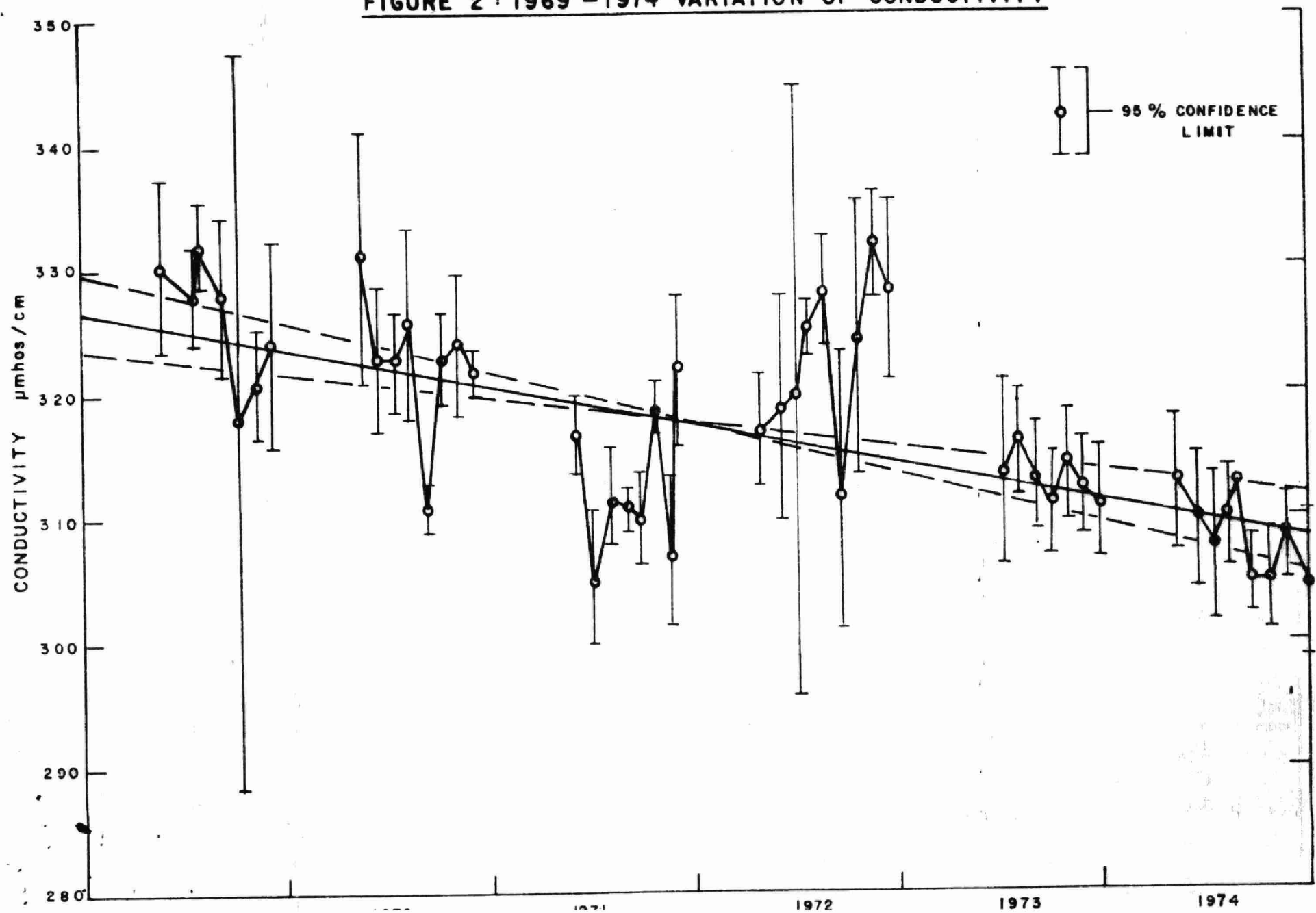
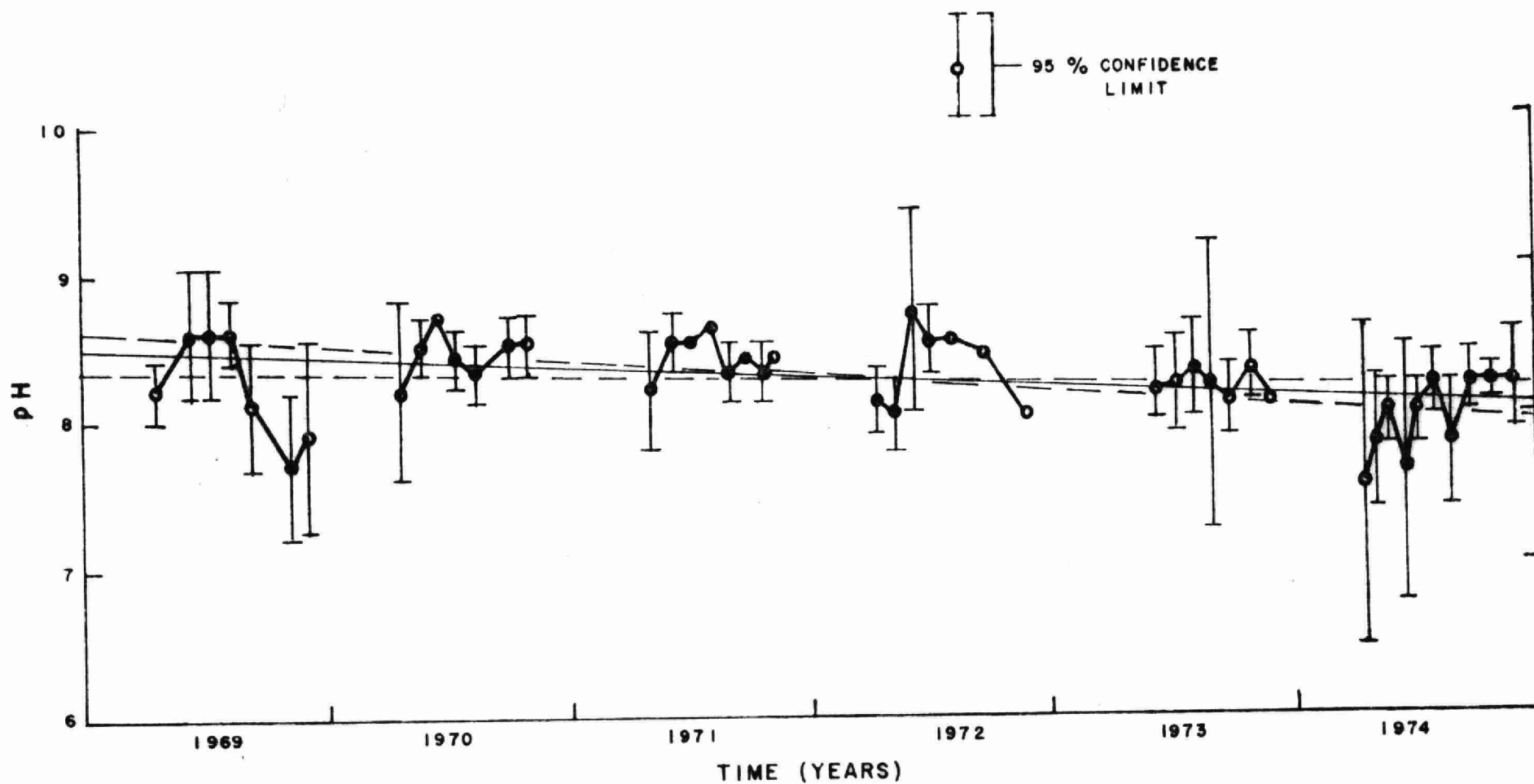
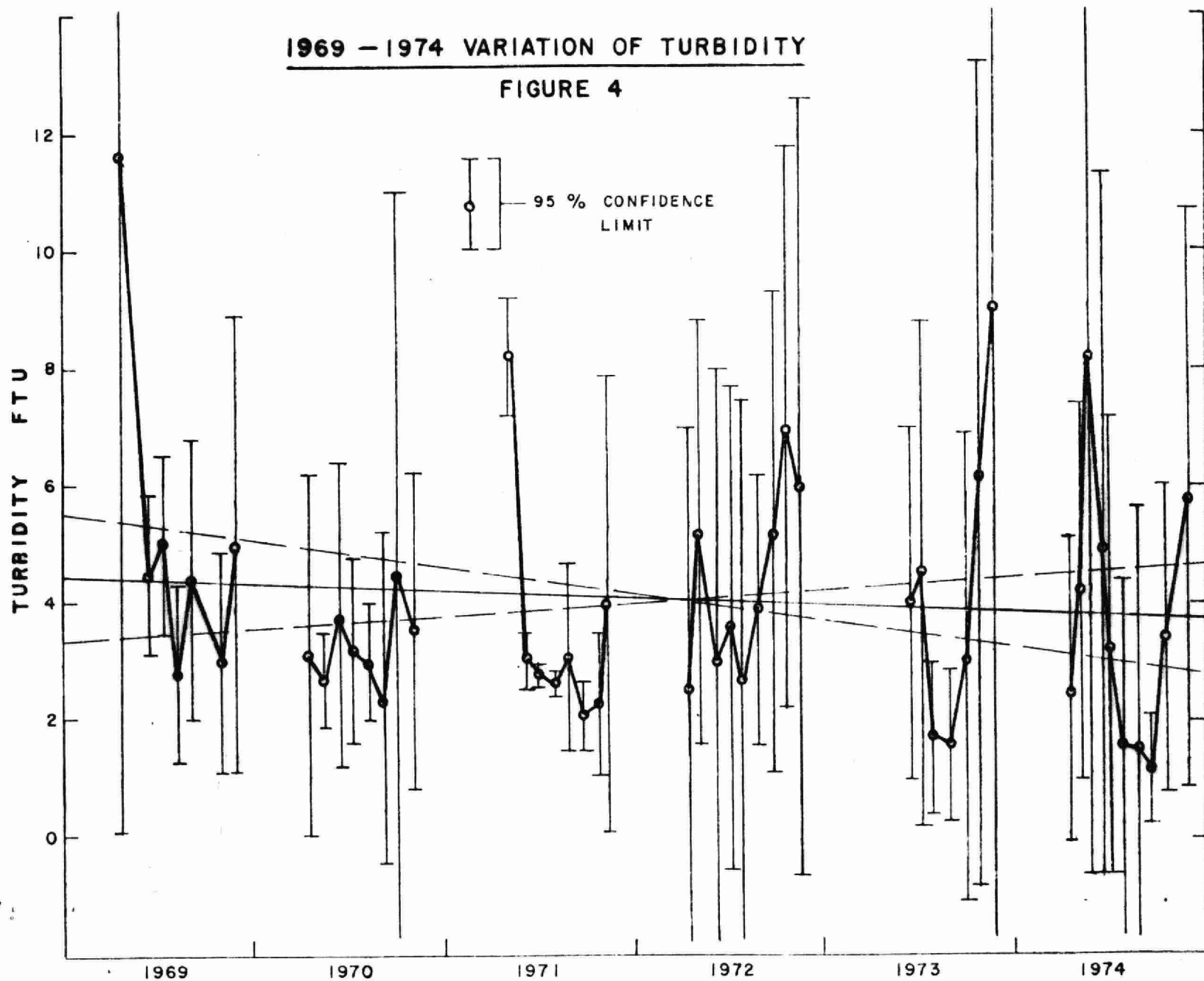


FIGURE 3 : 1969 - 1974 VARIATION OF pH



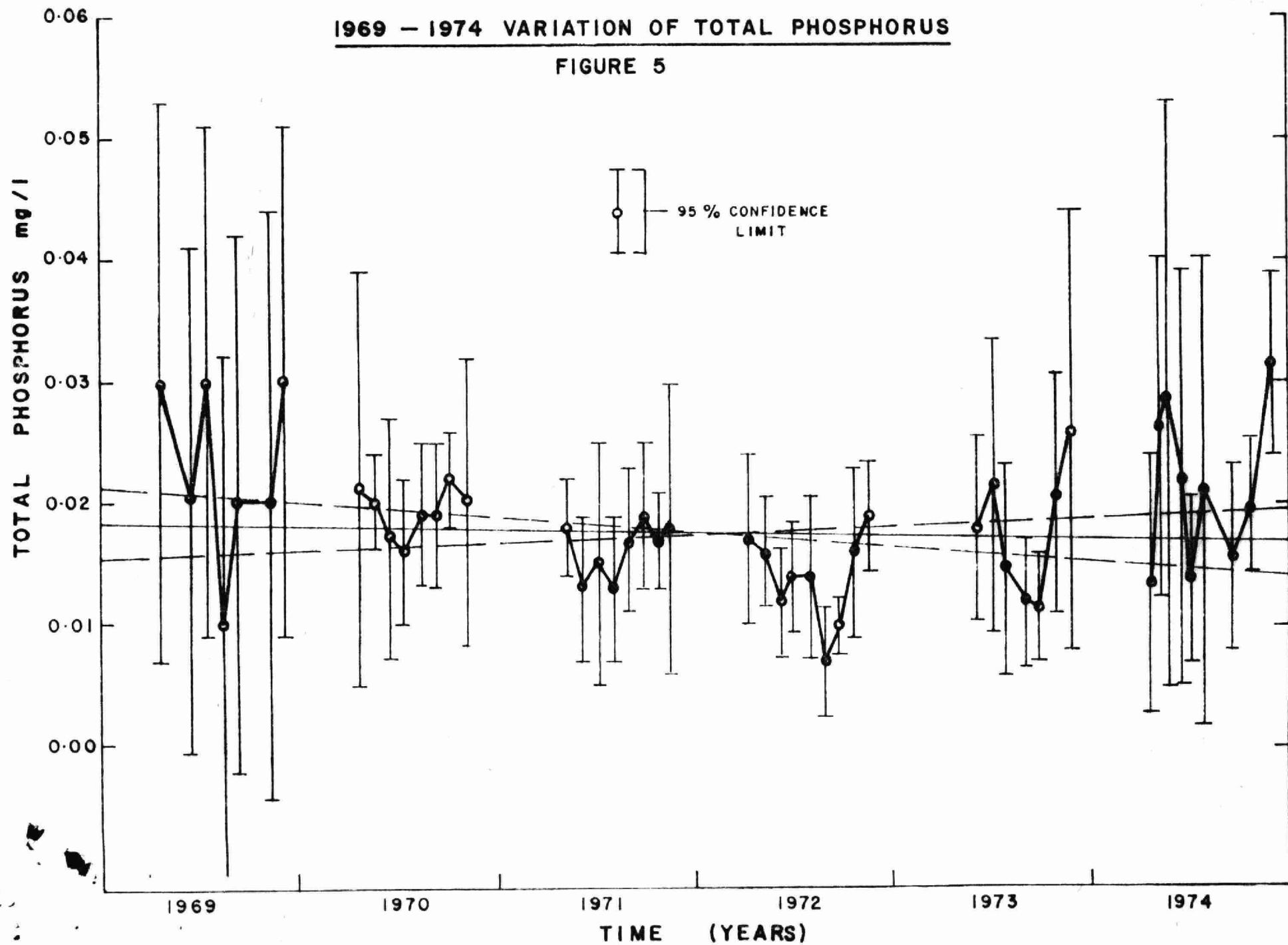
1969 - 1974 VARIATION OF TURBIDITY

FIGURE 4



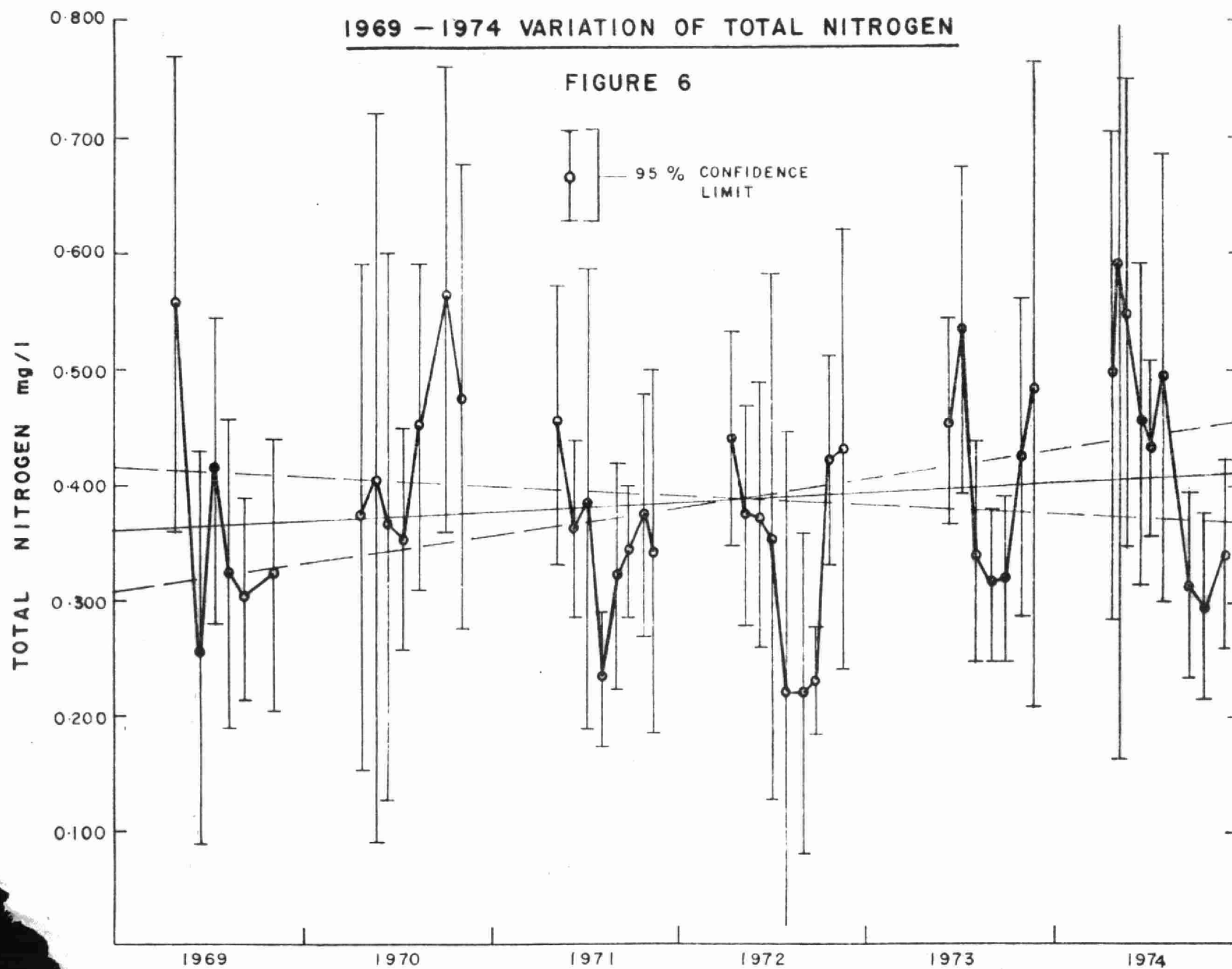
1969 - 1974 VARIATION OF TOTAL PHOSPHORUS

FIGURE 5



1969 - 1974 VARIATION OF TOTAL NITROGEN

FIGURE 6





TERMINAL STREAM: SYDENHAM R.

[illegible]